

# MAUER-FREI

GENERATING TRANSFORMATION AT THE  
BERLIN-BRANDENBURG BORDER

by  
Katherine Morawietz

A thesis submitted in partial fulfillment  
of the requirements for the degree of

MASTER OF ARCHITECTURE

The Faculty of Graduate Studies  
Laurentian University  
Sudbury, Ontario, Canada





author

KATHERINE MORAWIETZ

2019

MASTER OF ARCHITECTURE

-

advisor

ALIKI ECONOMIDES

second reader

RANDALL KOBER



**THESIS DEFENCE COMMITTEE/COMITÉ DE SOUTENANCE DE THÈSE**  
**Laurentian University/Université Laurentienne**  
Faculty of Graduate Studies/Faculté des études supérieures

Title of Thesis  
Titre de la thèse MAUER-FREI: Generating Transformation at the Berlin-Brandenburg Border

Name of Candidate  
Nom du candidat Morawietz, Katherine

Degree  
Diplôme Master of

Department/Program  
Département/Programme Architecture

Date of Defence  
Date de la soutenance April 09, 2019

**APPROVED/APPROUVÉ**

Thesis Examiners/Examineurs de thèse:

Dr. Aliko Economides  
(Thesis Advisor / Directeur(trice) de thèse)

Randall Kober  
(Thesis Second Reader / Directeur(trice) de thèse deuxième)

Professor Brian Lilley  
(External Examiner/Examineur(trice) externe)

Approved for the Faculty of Graduate Studies  
Approuvé pour la Faculté des études supérieures  
Dr. David Lesbarrères  
Monsieur David Lesbarrères  
Dean, Faculty of Graduate Studies  
Doyen, Faculté des études supérieures

**ACCESSIBILITY CLAUSE AND PERMISSION TO USE**

I, **Katherine Morawietz**, hereby grant to Laurentian University and/or its agents the non-exclusive license to archive and make accessible my thesis, dissertation, or project report in whole or in part in all forms of media, now or for the duration of my copyright ownership. I retain all other ownership rights to the copyright of the thesis, dissertation or project report. I also reserve the right to use in future works (such as articles or books) all or part of this thesis, dissertation, or project report. I further agree that permission for copying of this thesis in any manner, in whole or in part, for scholarly purposes may be granted by the professor or professors who supervised my thesis work or, in their absence, by the Head of the Department in which my thesis work was done. It is understood that any copying or publication or use of this thesis or parts thereof for financial gain shall not be allowed without my written permission. It is also understood that this copy is being made available in this form by the authority of the copyright owner solely for the purpose of private study and research and may not be copied or reproduced except as permitted by the copyright laws without written authority from the copyright owner.



Whether architectural or urban in scale, the basic building element of the wall is invariably a product of its sociopolitical context. While often deceptively simple in form, walls embody complex political maneuvering and perpetuate tremendous divisive power. A striking instance of this at a large scale was the descent of the Iron Curtain across Europe, which, through the aggressive imposition of walls, literally and metaphorically concretized the ideological contention between democracy and communism in the twentieth century. Taking Berlin as a vivid case through which to investigate the legacy of this polarizing divider, this thesis offers a timely reflection on the potential and relevance of subverting the inherent divisiveness of walls. Titled *Mauer-Frei* (or, “Wall-Free”), this thesis project advances an antithetical elaboration on the restrictive and imposing influence of the Berlin Wall and positively engages those traversing the zone demarcated by the former Dreilinden-Drewitz (East) and Checkpoint Bravo (West) border crossings.

*Keywords*

architecture, infrastructure, walls, Berlin, highway, border, concrete



# ACKNOWLEDGEMENTS

to my family,  
whose unwavering support has encouraged me to accomplish more  
than I ever dreamed;

to Aliko,  
whose guidance and intellect were invaluable to the crafting of this  
body of work and for whose mentorship I am most grateful;

to Randy,  
who took an active role in this process and for whose time and  
expertise I am very appreciative;

to my peers,  
who have been on this journey with me from the very beginning  
and with whom I have shared countless laughs, late nights, and cups  
of coffee;

thank you.





# CONTENTS

|                  |      |
|------------------|------|
| Abstract         | vii  |
| Acknowledgements | ix   |
| List of Figures  | xiii |
| Preface          | xvii |

|                          |    |
|--------------------------|----|
| 1 History                | 1  |
| 2 Walls                  | 13 |
| 3 Precedents             | 25 |
| 4 Site                   | 37 |
| 5 Intervention           | 51 |
| 6 Concluding Reflections | 71 |
| Bibliography             | 77 |
| Appendix   Video         | 87 |



# LIST OF FIGURES

|            |  |    |
|------------|--|----|
| 1          | HISTORY                                |    |
| Figure 1.1 | <i>Berlin at Night</i>                 | 2  |
| Figure 1.2 | <i>The Division of Germany in 1945</i> | 4  |
| Figure 1.3 | <i>The Path of the Berlin Wall</i>     | 6  |
| Figure 1.4 | <i>Berlin Wall Timeline</i>            | 8  |
| Figure 1.5 | <i>Rent Increase Protest</i>           | 10 |
| Figure 1.6 | <i>Gentrification (before)</i>         | 10 |
| Figure 1.7 | <i>Gentrification (after)</i>          | 10 |
| Figure 1.8 | <i>Refugee Integration</i>             | 10 |
| 2          | WALLS                                  |    |
| Figure 2.1 | <i>Berlin Wall Checkpoints</i>         | 14 |
| Figure 2.2 | <i>Historical Vestiges</i>             | 16 |
| Figure 2.3 | <i>East Side Gallery</i>               | 18 |
| Figure 2.4 | <i>Berlin Wall Memorial</i>            | 20 |
| Figure 2.5 | <i>Unbuilding Walls</i>                | 22 |
| Figure 2.6 | <i>Unbuilding Walls Panels</i>         | 22 |
| 3          | PRECEDENTS                             |    |
| Figure 3.1 | <i>Vietnam Veterans Memorial</i>       | 26 |
| Figure 3.2 | <i>Vietnam Veterans Memorial Walls</i> | 26 |
| Figure 3.3 | <i>Igualada Cemetery</i>               | 28 |
| Figure 3.4 | <i>Storm King Wall</i>                 | 30 |
| Figure 3.5 | <i>Glowing Lines</i>                   | 32 |
| Figure 3.6 | <i>Gates of Light</i>                  | 32 |
| Figure 3.7 | <i>CityLink Sound Tube</i>             | 34 |



|             |  |    |
|-------------|--|----|
| 4           | SITE   |    |
| Figure 4.1  | <i>Aerial View of the Existing A-115 Highway</i> | 38 |
| Figure 4.2  | <i>Map of Highway A-115 in 1959</i>              | 40 |
| Figure 4.3  | <i>Map of Highway A-115 in 1979</i>              | 41 |
| Figure 4.4  | <i>Checkpoint Bravo</i>                          | 42 |
| Figure 4.5  | <i>Raststätte Dreilinden</i>                     | 42 |
| Figure 4.6  | <i>Zoetrope and Stand</i>                        | 44 |
| Figure 4.7  | <i>Zoetrope Site Model</i>                       | 44 |
| Figure 4.8  | <i>Viewing the Animation</i>                     | 44 |
| Figure 4.9  | <i>The A-115 in 1959</i>                         | 46 |
| Figure 4.10 | <i>The A-115 in 1979</i>                         | 46 |
| Figure 4.11 | <i>The A-115 in 2019</i>                         | 47 |
| Figure 4.12 | <i>Zoetrope Animation Progression</i>            | 48 |

|             |   |    |
|-------------|---|----|
| 5           | INTERVENTION  |    |
| Figure 5.1  | <i>Mauer-Frei Site Plan</i>   | 54 |
| Figure 5.2  | <i>Structural Progression of the Wall</i>                           | 57 |
| Figure 5.3  | <i>Musical Pipes Played by the Car</i>                              | 58 |
| Figure 5.4  | <i>Pipe Height vs. Pitch</i>  | 58 |
| Figure 5.5  | <i>Pedestrian &amp; Cyclist Bridge</i>                              | 60 |
| Figure 5.6  | <i>Wind Turbines at Europarc</i>                                    | 62 |
| Figure 5.7  | <i>Wind Turbine</i>   | 62 |
| Figure 5.8  | <i>Amphitheatre and Land Bridge at the former<br/>“Death-Strip”</i> | 64 |
| Figure 5.9  | <i>Section through the Land Bridge, Amphitheatre<br/>and Tunnel</i> | 66 |
| Figure 5.10 | <i>Diagram of Relationships</i>                                     | 68 |

|   |                        |  |
|---|------------------------|--|
| 6 | CONCLUDING REFLECTIONS |  |
|---|------------------------|--|

|          |       |  |
|----------|-------|--|
| APPENDIX | VIDEO |  |
|----------|-------|--|



# P R E F A C E

As a transhistorical and transcultural building element, the wall is a politically-loaded product of its sociocultural context. Whether architectural or urban in scale, walls condense complex values and can perpetuate tremendous divisive power despite their often deceptively simple form. This condition calls for critical reflection on the implicit agency of walls to embody oppressive ‘in vs. out’ and ‘us vs. them’ dichotomies, and simultaneously invites speculation on ways of using walls to artfully subvert these blunt categories. A vivid case through which to probe these issues is the legacy of the Berlin Wall whose form as a large-scale sociopolitical boundary marker was imbued with lasting psychological consequences. As a microcosm of the effects of the Cold War in Europe, the once divided city of Berlin was encircled entirely by former communist territory, and for 28 years featured a heavily guarded political boundary between what was then West Berlin and East Germany. This stark political division was concretized literally and figuratively in the Berlin Wall, whose effects continue to resonate in the city’s urban fabric and collective imaginary, decades after its fall.

This thesis project critically engages the legacy of the Berlin Wall and more broadly, the architectural potential of walls to be mobilized in ways that cultivate a positive, transformative experience. Focusing on the major vehicular border crossing between Dreilinden-Drewitz in former East Germany and Checkpoint Bravo sited in former West Berlin, today this once highly controlled zone calls attention to its loaded past largely through traffic signs indicating the regional limits of present-day Brandenburg and Berlin. The site of intervention spans 3.5 km along the Bundesautobahn 115, beginning at the southern point of this highway where it had been diverted from its original path in 1979 to accommodate border security measures between East and West Germany. Grounded in the wall-types that developed over the course of the Berlin Wall’s structural enhancements, the proposed interventions subvert the complex threshold defined by the Wall’s perpendicular intersection with the highway and instead weave along the length of the elongated site, enabling the traveller to inhabit the zone between the walls in the formerly inaccessible “death-strip”.





Driving north toward Berlin, the driver is introduced to the site by a momentary framing of the road by two large vertical pillars reminiscent of the Berlin Wall's final L-shaped form, here turned on its head. Tracking the number of vehicles moving through the new infrastructure, the data collected at this point is displayed at the opposite end of the site immediately before the void of the former "death-strip". At this southern boundary marker, the existing sound barrier on the left-hand side is replaced by a concrete sound wall at the point where the original A-115 highway diverged from its current path. The wall eventually lifts off the ground in ribbon-like form and shifts overhead to frame 28 hollow metal tubes in the median, which offer a musical moment generated by both the wind and air moved by vehicles as they speed past. As the highway approaches the Teltow Canal, wall twists to host a multilevel bridge that creates a moment of vertical inhabitation between boat, automobile, cyclist and pedestrian modes of transportation. Arcing down to touch opposite banks of the canal, the pedestrian and cyclist levels of the bridge extend and connect to existing paths in the forested areas beside this portion of the highway. Beyond the bridge, the modified sound barrier walls along the stretch of highway adjacent to the Europarc Dreilinden, formerly the site of the Soviet Checkpoint Dreilinden-Drewitz, integrate wind turbines that generate electricity to power lighting fixtures and visual displays along the route. As the wall moves beyond this business park, it becomes host to plant life, eventually sweeping overhead to enclose the highway and provide an elevated green-space that connects both sides of the highway. Designed as a public park, this land bridge also provides a forum for musicians and performance artists to celebrate their medium, thereby inviting an ever-changing and uplifting experience of spectacle and sound on the site of the former wall's divisive foundations. Below, on the tunnel's inner surface, the data collected from the site marker at the beginning of the intervention registering each vehicle that passed 28 hours beforehand, animates the tunnel's walls as moving points of light in the direction of travel. At the place where the Berlin Wall once stood, the land bridge tunnel suddenly opens up to the sky, framed by accorded walls of cor-ten steel, which allude to the collapse of space between the physical border of the former Wall and the actual geopolitical border ahead, allowing drivers the opportunity to consciously inhabit the very zone, or non-place, that was forbidden during the years of the Berlin Wall's imposition on the landscape. This project, conceived to be experienced differently in both directions of travel, is subject to the conditions of weather and traffic to curate its dynamic visual- and soundscapes. It is envisioned as an infrastructure that will be enriched by public performances and events at the park, thereby perpetually renewing the project's programme and user experience. It is an infrastructural intervention that is both solitary and collective, dynamic and static, and one that encourages new interpretations of the historic Berlin wall-types while positively impacting the people who travel through and inhabit the surrounding areas.



1

# HISTORY



Instigated by Germany, the Second World War began in the Fall of 1939 and culminated in the defeat of the Axis Alliance in May 1945.<sup>1</sup> Berlin had been the capital city and the seat of Nazi power in Germany throughout the war, and it was to this place the victors, namely the Western Allies of Britain, France, and the United States, and the Soviet Union from the East, flocked. Defenceless, Germany as a country was consequently divided into two countries, with the Allied Forces occupying the West and the Soviet Union occupying the East.<sup>2</sup> Due to its importance as capital city, Berlin was similarly split into eastern and western political zones. Given that the city lay in East German territory, the western sector of Berlin became an island within the East.

At war's end, Berlin was a veritable wasteland, home to little more than half of its former population in a cityscape of destroyed buildings and rubble.<sup>3</sup> Despite new political divisions and uncertainty for the future of the country, the most immediate task at hand was the rebuilding of the city. As a result of the dramatic gender imbalance among citizens – a visible reminder of the war's cost of human lives – many women took on this manual task and became widely known as *Trümmerfrauen*, or “rubble-women.”<sup>4</sup> They became an integral part of the effort to clean up and sort through the rubble of bombed-out buildings, facilitating the renewal of Berlin and organizing materials for its reconstruction.

Although the major world conflict was over, Germany became the focal point of the Cold War, caught between the opposing ideologies of the Western powers and the USSR. The West encouraged the continuation of democracy and sought to bring post-war Germany into the modern age. To this end, the capital of the country was even moved to Bonn,<sup>5</sup> temporarily locating it safely within West German territory. The East, however, was under Soviet governance and therefore became a socialist state. Those living in East German territory were expected to adhere to new rules of societal order and were discouraged from leaving for the West. Many families were separated by this political division, although the physical separation of these states did not occur for another 16 years. Despite these two political powers operating under opposing structures, a tentative joint-administration was formed for the post-war governance of Germany.<sup>6</sup>

In the years that followed, the Soviet Union exercised its power in various ways, beginning with the Berlin Blockade; a move that cut off West Berlin entirely from the rest of Germany for a year. As a result, the Western Allies implemented the Berlin Airlift, providing supplies and food via airplane and solidifying the perception in West Berlin of them being friends and protectors.<sup>7</sup> Once the Blockade was lifted, the fragile joint-administration ended and each side implemented their own governmental structures. Each government pursued building projects and societal reforms, however, some of the socialist ideals of the East were difficult for most to embrace and even led to one deadly uprising. By 1960, hundreds of thousands of people had fled East Germany, now known as the German Democratic Republic (GDR), for the West by relocating to West Berlin.<sup>8</sup> The East had one solution to curb the mass exodus of people from their territory, and in 1961 began construction on what would become an international symbol for division and the manifestation of Soviet might: The Berlin Wall.

## Figure 1.1 *Berlin at Night*

An aerial image of Berlin taken from the International Space Station in 2012 revealing the lingering contrast between the city's former halves.

1 “Berlin after 1945,” *Berlin in Brief*, State of Berlin, accessed November 8, 2018, <https://www.berlin.de/berlin-im-ueberblick/en/history/berlin-after-1945>.

2 David Tieman Doud, *Berlin 2000: The Center of Europe* (London: University Press of America, 1995),

3

3 “Berlin after 1945.”

4 *Die Trümmerfrauen von Berlin*, Video, directed by Hans-Dieter Grabe (BR Deutschland: ZDF, 1968).

5 “Berlin after 1945.”

6 Ibid.

7 T. H. Elkins with B. Hofmeister, *Berlin: The Spatial Structure of a Divided City* (London: Methuen & Co, 1988), 42.

8 “Berlin after 1945.”

### Figure 1.1:

André Kuipers, *Berlin at Night* (ESA/NASA, 2012).

### Figure 1.2 (pages 24-25) - Source Images:

Paasikivi, *West & East Berlin (1945-1990)* (Wikimedia Commons, 2016).

Spesh531, *Blank Map of Europe* (Wikimedia Commons, 2014).

Lang Constantin, *Deutschland Bundeslaender 1957* (Wikimedia Commons, 2017).

Modified by Katherine Morawietz.

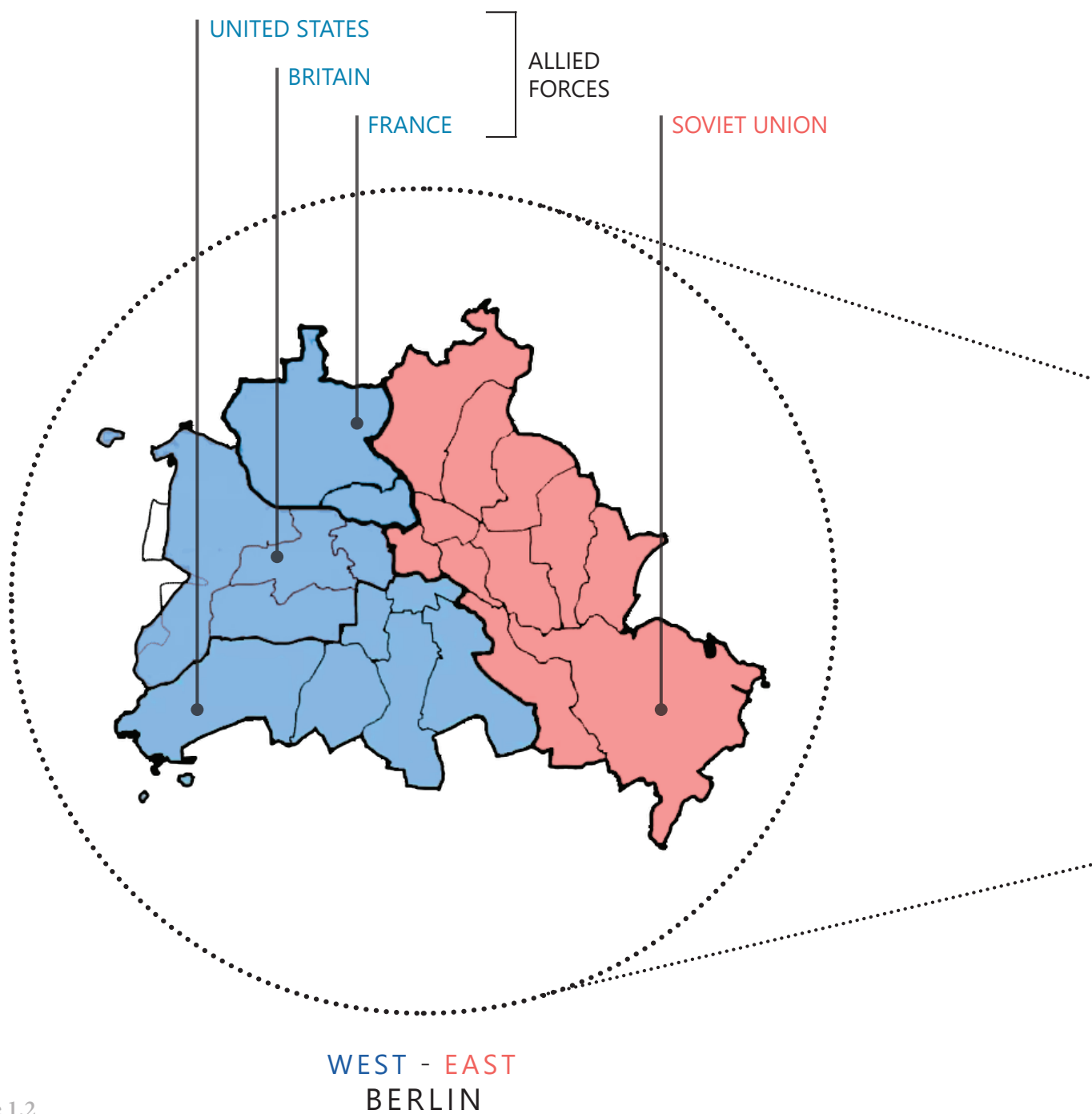
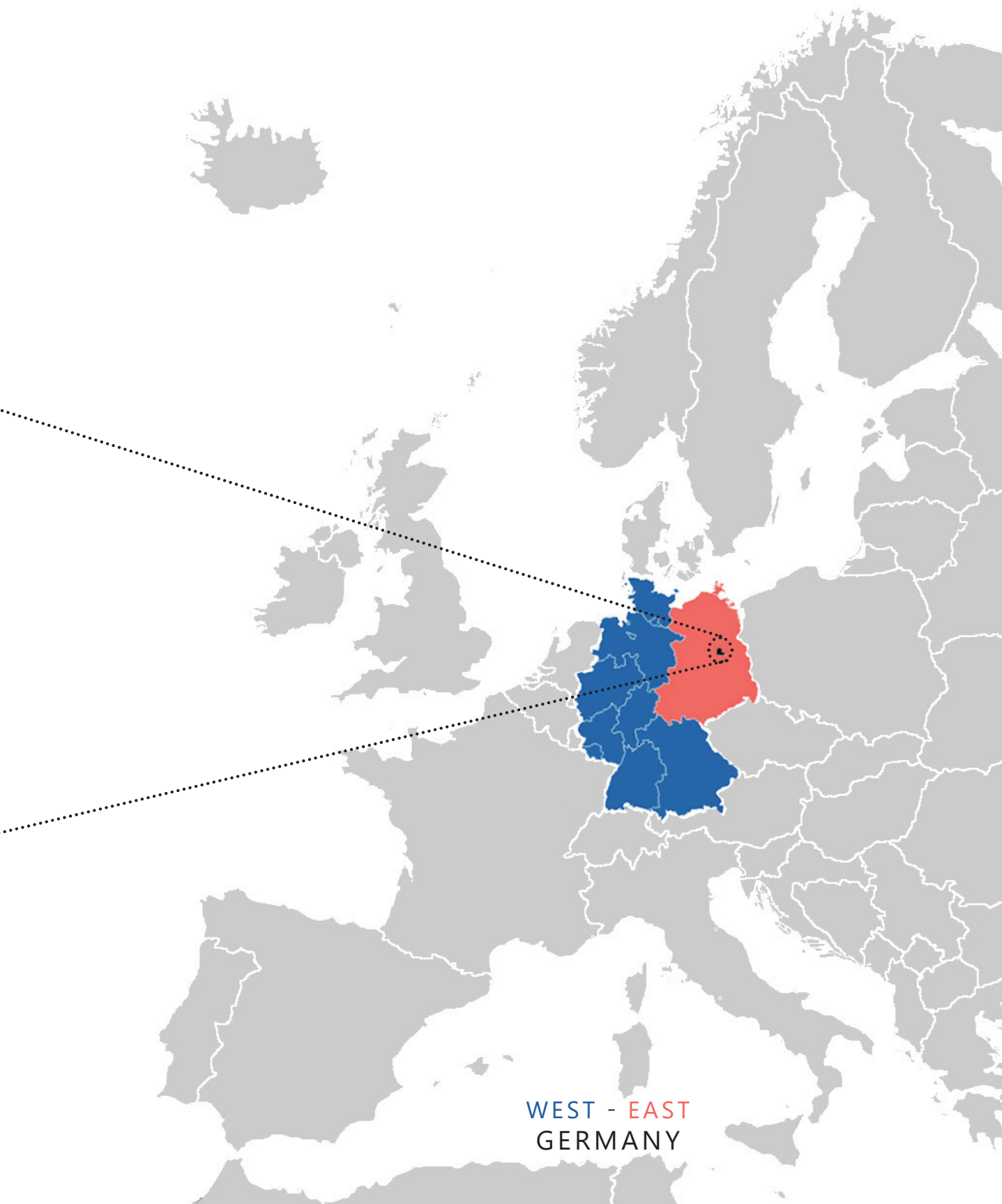


Figure 1.2

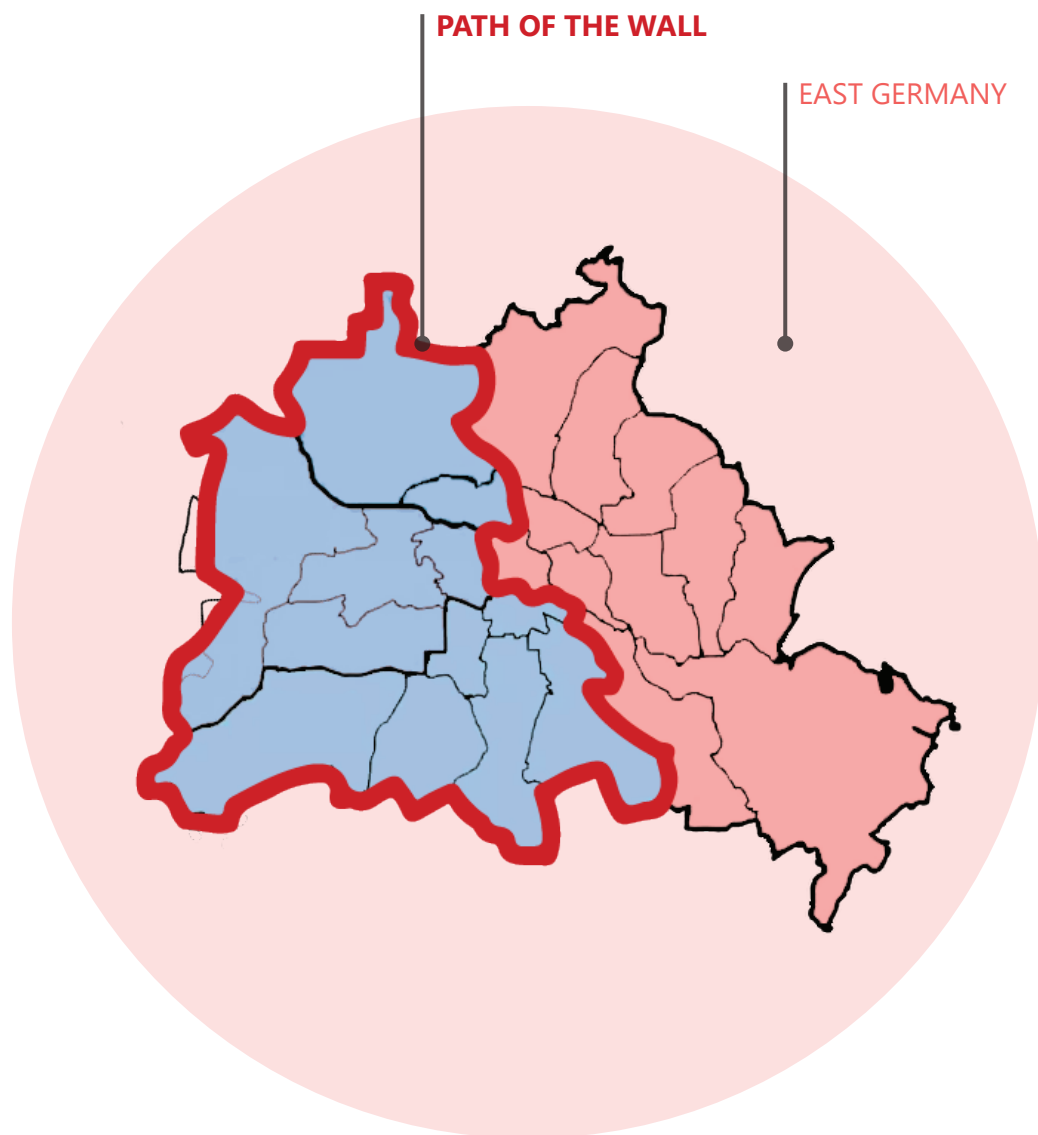
*The Division of Germany in 1945*

Maps of the Eastern and Western sectors of Germany and of Berlin, respectively, as divided and occupied by the Allies (West) and the Soviets (East).





WEST - EAST  
GERMANY



WEST - EAST  
BERLIN



**Figure 1.3**  
*The Path of the Berlin Wall*

A map of the Berlin Wall's path as it surrounded the entirety of West Berlin within East German territory.

The imposition of the Berlin Wall on the German landscape was impossible to miss. On August 13, 1961, the Soviets began construction of a physical barrier both to demarcate the line where their authority ended and to prevent anyone from attempting to flee illegally to the West.<sup>9</sup> The political border was not only fortified in Berlin, but additionally at the boundary between East and West Germany. The Wall built around West Berlin stayed as true to the limits of Soviet political control as possible, cutting unapologetically through the center of the city, across residential streets, and even laying claim to sections of the River Spree.<sup>10</sup> This erratic route resulted in myriad separations, with businesses, friends and families confined to different sides.

The Berlin Wall itself was not a single wall separating East and West, but an entire fortified zone that delineated the place where socialism ended and capitalism began. It was comprised of an “inner wall” facing the Soviet East, an “outer wall” facing the West, and a void between known as the “death-strip,” an area up to several hundred meters wide that had been razed to the ground.<sup>11</sup> Patrolled by soldiers and outfitted with defensive fortifications, the “death-strip” was so named because anyone from the East attempting to illegally cross over to the West would be shot or imprisoned.

The East and West each viewed the Wall in a different light. For the West, it was a symbol of the oppression their Eastern counterparts were facing and became an object of curiosity, a surface for graffiti and a site of provocation. In the East, however, the Wall was untouchable. Referred to as the “anti-fascist protection rampart,”<sup>12</sup> the wall was touted as a protective measure against the fascist West; a separation that was for the people's own good. Unlike in the West, where the wall could be interacted with and used as a canvas for artistic political expression, the inner wall facing the East remained blank, as even getting too close was forbidden and could be interpreted as a punishable act of defiance.

For the 28 years that the Wall stood it contributed much to the cultivation of two opposing societies in the post-war era. Although tensions were at a head when the Wall was first built, they slowly lessened over time to the point where travel across it into East or West Berlin was possible, pending approval. Eventually, agreements had been made to allow unrestricted travel across the border. This announcement was prematurely made public on November 9, 1989, a day before it was intended to go into effect, resulting in thousands of people swarming the border.<sup>13</sup> Overwhelmed and unaware of the change in policy, the guards held until midnight, at which point the checkpoints were forced open and the barriers that had held Berlin's citizens apart for so long were breached and eventually dismantled.

9 Elkins with Hofmeister, *Berlin: The Spatial Structure of a Divided City*, 54.

10 “The Wall inside the city,” *Berlin Wall*, State of Berlin, accessed November 8, 2018, <https://www.berlin.de/mauer/en/route/the-wall-inside-the-city>.

11 Ibid.

12 Marianne Birthler et al., *Unbuilding Walls: From Death Strip to Freespace* (Basel: Birkhäuser, 2018), 20.

13 John Borneman, *Belonging in the Two Berlins: Kin, State, Nation* (New York: Cambridge University Press, 1992), 313-314.

**Figure 1.3 - Source Image:**

Paasikivi, *West & East Berlin (1945-1990)* (Wikimedia Commons, 2016). Modified by Katherine Morawietz.

**Figure 1.4 (pages 8-9) - Source Images:**

Vassili J. Subbotin, *The Brandenburg Gate and Under the Linden After the Battle of Berlin* (MediaDrum-World, n.d.).

*Bau der Berliner Mauer am Postdamer Platz* (Picture Alliance).

Noir, *Berlinermauer* (Wikimedia Commons, 2014).

Stephen Jaffe, *West Germans Celebrate The Unification Of Berlin...* (Getty Images, 1999).

Sarah Shannon, *Berlin Wall* (Sarah Shannon Photography).

Katherine Morawietz, *Berlin Wall Memorial* (2018).

END OF WWII  
BRANDENBURG GATE/  
UNTER DEN LINDEN



1945



AUGUST 13, 1961  
CONSTRUCTION OF THE WALL

1961

**Figure 1.4**  
*Berlin Wall Timeline*

A timeline of the city since the end of World War II, charting the construction, the fall, and the lingering vestiges of the Berlin Wall.

An urban-scaled intervention devised by the Soviet East, the Berlin Wall was built to better police the East-West border. It was comprised of an inner and an outer wall, separated by a “death-strip,” which was constantly under surveillance in order to easily identify and apprehend anyone attempting to cross illegally. Once the two Berlins were reunited, the concrete dividers were mostly demolished with the exception of those preserved as memorials to the past. The East Side Gallery and the Berlin Wall Memorial are two such examples, each featuring preserved stretches of the original wall that have been integrated into the city’s urban fabric as a permanent art gallery and documentation center, respectively.



NOVEMBER 9, 1989  
FALL OF THE WALL

1990

1998

1989



EAST SIDE GALLERY  
MÜHLENSTRASSE



BERLIN WALL MEMORIAL  
BERNAUERSTRASSE



**Figure 1.5**  
*Rent Increase Protest*

Renters on Karl-Marx-Allee in Berlin protesting rising rent costs with signs hung from windows.



**Figure 1.6-1.7** (left to right)  
*Gentrification*

An example of gentrification in Berlin, in which a building previously occupied by squatters (left) has been transformed into an upscale boutique (right).



**Figure 1.8**  
*Refugee Integration*

A demonstration in Berlin against the laws offering refugees and migrants asylum in the city.



Despite the Berlin Wall's almost total physical erasure from the city's urban fabric, the legacy of its divisive force continues to be felt. During the 28 years that the Wall stood, an entire generation of people were born and raised in adherence to the sociopolitical norms of their side of the Wall. In the West, capitalism and individual success was the cornerstone of collective identity; in the socialist East, the good of the collective and maintaining social equality was prioritized. Once the wall was demolished it became apparent that in the almost three decades of imposed separation following the Second World War, the two halves of the city and country had developed and been rebuilt very differently.<sup>14</sup> In much the same way in which the older generation had struggled to accept Germany as a divided nation, the younger generation had to grapple with a new understanding of national identity when the country was (re)unified. Over time, these differences are gradually occupying a less prominent place in the collective consciousness, yet traces of continued inequality, such as disparities in rent and wages, are still present in Berlin's former East and West sectors.<sup>15</sup>

In the post-Wall era, Berlin has been presented in a new light on the global stage as a creative haven for artists and as a "city of freedom."<sup>16</sup> This complete makeover of the city's projected identity has aimed to create the necessary distance from its former association with Nazism and prove that Berlin is more interested in promoting acceptance, creativity, and freedom of expression. Known for low rent and an abundance of vacant buildings, Berlin has been able to support its growing art scene, yet rent prices are on the rise as Berlin has become an ever more desirable place to live. Struggling with a growing population that includes a large influx of refugees in recent years, the art scene that has been the foundation of Berlin's new identity is in jeopardy. The increase in rent is due to the gradual gentrification of districts, as formerly undesirable areas garner more attention due to the influences of the artists living there. As more people notice the potential of these places, they are subject to a demand that has a direct impact on living costs, forcing the creative nucleus to shift once again. The spread of gentrification contributes to the increase in real estate market value, and the city is only continuing to grow, forcing the cheap rent and art scene to move farther and farther out of the centre of the city.<sup>17</sup>

One of the most prominent divisions that Berlin is currently struggling with is the integration of refugees in the city. Over the last few years, many asylum seekers from war-torn countries have fled to Berlin in the hopes of making a new life there. The biggest problem faced by these refugees is integrating into German society. Differences of race, culture, and language all reinforce divisions between refugee and citizen. And despite assistance programs offered by the city, significant resources, time and effort are required for newcomers to become productive members of society.<sup>18</sup>

The various forms of social and spatial division influence each other, with the influx of refugees affecting rent costs and the spread of gentrification pushing both the artists and the urban poor to the outskirts of the city. There is no simple way to address these issues, and their divisive force is at the forefront of Berlin's struggle with its identity today.

14 Doud, *Berlin 2000*, 33.

15 Birthler et al., *Unbuilding Walls*, 22-23.

16 "Welcome to Berlin," *Visit Berlin*, Berlin Tourism & Kongress, accessed September 22, 2018, <https://www.visitberlin.de/en>.

17 Leonid Bershidsky, "Gentrification in Turning Berlin into a Generic Hipsterville," *Bloomberg Opinion*, April 19, 2018, <https://www.bloomberg.com/opinion/articles/2018-04-19/gentrification-is-turning-berlin-into-a-generic-hipsterville>.

18 Bruce Katz, Luise Noring and Nantke Garrelts, "Cities and Refugees: The German Experience," *Brookings*, September 18, 2016, <https://www.brookings.edu/research/cities-and-refugees-the-german-experience>.

**Figure 1.5:**

Katherine Morawietz, *Renter Protest* (2018).

**Figure 1.6:**

Thomas Quine, *Squat* (Flickr, 2009).

**Figure 1.7:**

Thomas Quine, *Studio 183* (Flickr, 2015).

**Figure 1.8:**

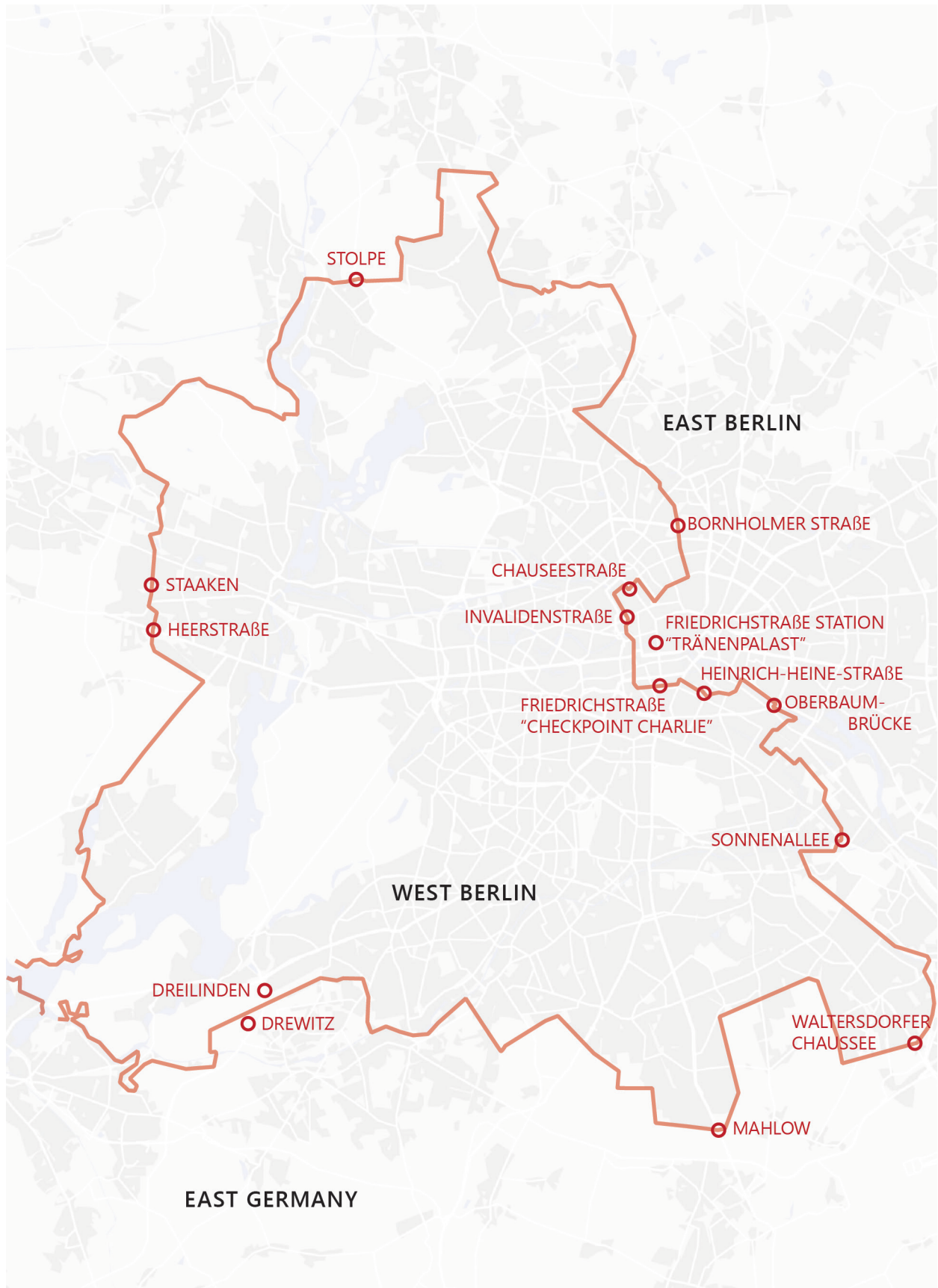
Fabrizio Bensch, *Supporters of the far-right National Democratic Party* (Reuters, 2015).



2

WALLS







**Figure 2.1**  
*Berlin Wall Checkpoints*

A map of the 14 checkpoints along the Berlin Wall allowing passage between West Berlin and East Berlin and East Germany.

**Figure 2.2** (pages 16-17)  
*Historical Vestiges*

A map showing the relative proximity of the many historical vestiges within Berlin's city-centre.

Historically, walling at the urban scale has been used to offer protection to citizens; the physical barricades drawing the line separating 'civilized' and 'uncivilized' realms and regulating the flows of people, possessions and prosperity.<sup>19</sup> Over time, city walls became less effective against advanced war techniques, yet their political and symbolic functions persisted, often underscoring existing social inequalities and exacerbating ethnic prejudices.<sup>20</sup> Although it is easy to think of a wall's impact as perpetuating a straightforward "in vs. out" dichotomy, it is usually the physical manifestation of an intricate sociopolitical agenda. As Brighenti and Kärrholm observe, "...walls are always part of several overlapping processes of territorialisations, setting parameters of co-existence, both *constraining* and *enabling* meetings and flows."<sup>21</sup> Having to do simultaneously with protection and segregation, walls at the urban scale are therefore politically-loaded and socially contested urban constructs.

At present, there are several urban walls worldwide that exemplify this situation, ranging from the Protestant/Catholic "peace lines" in Belfast, Northern Ireland, to the ongoing infrastructural vestiges of apartheid in South Africa, to the contested issue of a physical barrier between the United States and Mexico. As a recurrent feature at urban and territorial scales worldwide, both the fraught history and (re)current mobilization of walls warrant critical reflection and architectural speculation. To this end, the Berlin Wall offers a vivid case through which to probe the sociopolitical machinations leading to this specific urban wall's construction and the ongoing psychological reverberations after its fall. At the same time, and in light of Germany's ongoing struggle to operate as a single nation post-reunification, the legacy of the Berlin Wall invites architectural speculation on new agendas and forms of walling that deliberately run counter to sociopolitical divisions, and importantly, contribute to inclusion, diversity, and creative invigoration.

19 Jon Calame and Esther Ruth Charlesworth, *Divided Cities: Belfast, Beirut, Jerusalem, Mostar, and Nicosia* (Philadelphia: University of Pennsylvania Press, 2009), 19-20.

20 Ibid., 21.

21 Andrea Mubi Brighenti and Mattias Kärrholm, "Introduction: The life of walls – in urban, spatial and political theory," in *Urban Walls: Political and Cultural Meanings of Vertical Structures and Surfaces*, eds. Andrea Mubi Brighenti and Mattias Kärrholm (Abingdon, Oxon: Routledge, 2019), 1.

**Figure 2.1 - Source Image:**

Gareth Davies, *Figure-Ground Diagram of Berlin 2010* (Schlur, 2014). Modified by Katherine Morawietz.

**Figure 2.2 (pages 16-17) - Source Image:**

Google Maps, *Berlin City-Center* (Accessed 2019). Modified by Katherine Morawietz.





— PATH OF THE WALL

○ FORMER WALL CHECKPOINTS

● VESTIGES OF THE WALL

● WWII MONUMENTS

● MUSEUMS

WALL @ AN DER SCHILLINGBRÜCKE

EAST SIDE GALLERY

OBERBAUMBRÜCKE ○

WALL @ PUSCHKINALLEE

EAST BERLIN





## EAST SIDE GALLERY

MÜHLENSTRASSE | 1990

The East Side Gallery is an outdoor memorial dedicated to preserving a portion of the Berlin Wall. In early 1990, over one hundred artists from around the world were invited to paint murals along its 1.3km length, and it is a protected site maintained by an artists' initiative.<sup>22</sup> Due to its loaded history as a vestige of the former border between East and West Berlin, I had initially considered the East Side Gallery as the site of intervention for my thesis project. Located near the centre of Berlin and extending along the eastern bank of the River Spree, this site offers a compelling convergence of traces of historical border control and contemporary public space. Despite the former political boundary between the East and West lying on the river's West bank, at the time of the Berlin Wall's construction it was only possible to build on the East side. Therefore, the river that flowed between these two boundaries was under Soviet control, though the actual border fortifications did not reflect that.<sup>23</sup> The confusion of the site and the existence of the river within the no-mans-land of the political threshold seemed an ideal place to encourage connection and unity despite the Wall's divisive intentions. However, after visiting the East Side Gallery, it seemed to already feature enough programmatic elements to be a well-used public space, such that another intervention seemed redundant. Research into the East Side Gallery, therefore, has served the development of this thesis project more as a precedent than as a site of proposed intervention.

### Figure 2.3

#### *East Side Gallery*

A portion of the Berlin Wall with a segment removed to allow through access. The murals are painted on the "outer wall" facing the street in what was formerly East Berlin.

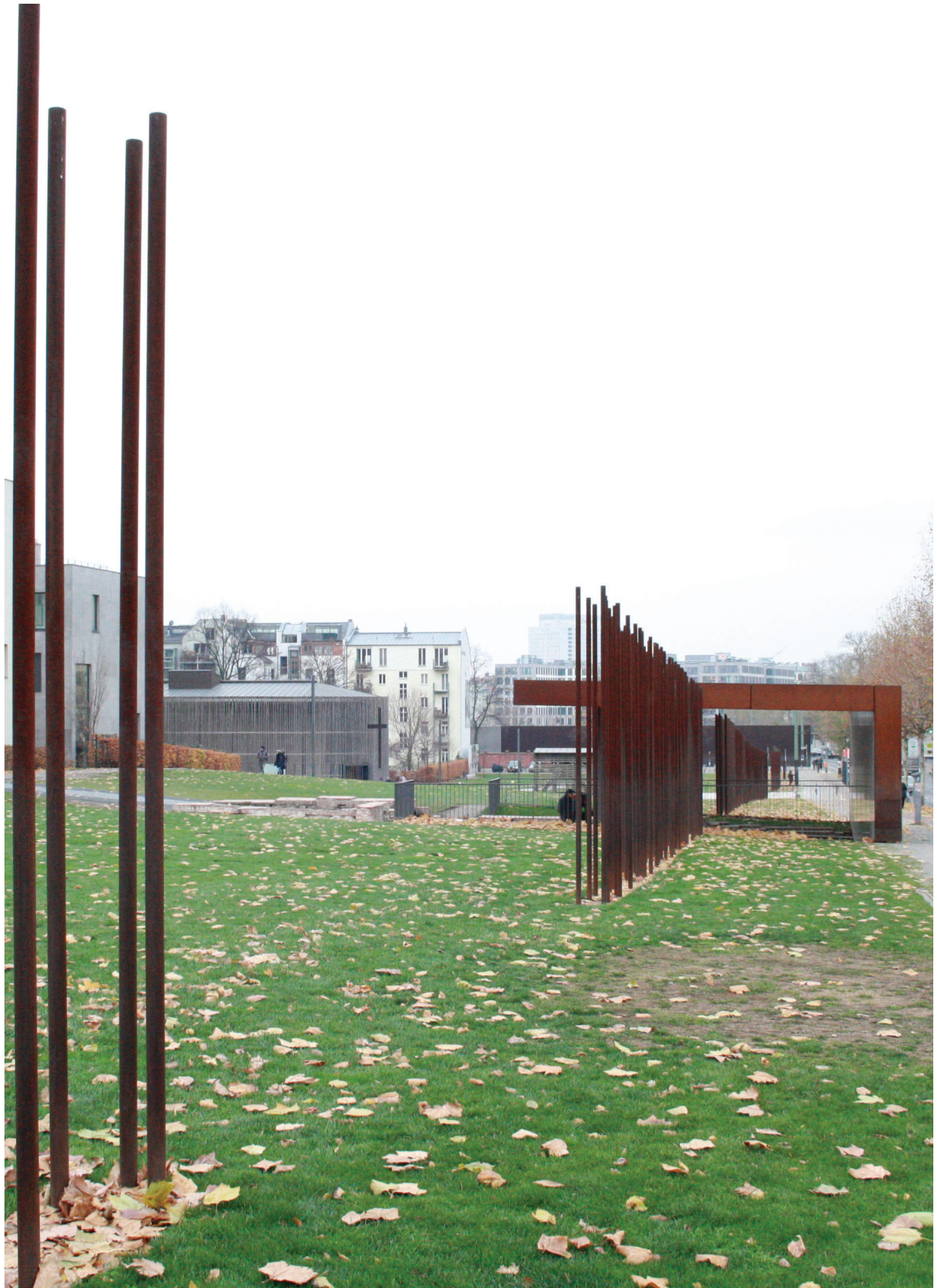
22 Birthler et al., *Unbuilding Walls*, 154-55..

23 "The Wall inside the city," *Berlin Wall*, State of Berlin, accessed October 13, 2018, <https://www.berlin.de/mauer/en/route/the-wall-inside-the-city>.

#### *Figure 2.3:*

Katherine Morawietz, *East Side Gallery* (2018).





## BERLIN WALL MEMORIAL

BERNAUERSTRASSE | 1998

**Figure 2.4**

*Berlin Wall Memorial*

These vertical bars memorialize the Berlin Wall's path through this neighbourhood. In the distance, the new Chapel of Reconciliation (2000) is visible on the left.

This particular memorial to the Berlin Wall consists of a large section of the original, multilayered, structure comprised of the walls erected by the East and West sides and the “death-strip” between them. It is preserved to give visitors an idea of exactly how the border zone looked by the end of the 1980s.<sup>24</sup> Located along Bernauerstraße, just north of the city-centre, the site of the Berlin Wall Memorial extends 1.4 kilometres and includes remnants of not only the Wall, but also the foundations of a former apartment house that formed part of the wall's façade, the new Chapel of Reconciliation, a structure representing a Soviet watchtower, and a memorial dedicated to those who died trying to cross the border. Located across the street are the Visitor Center and Documentation Center, which offer an account of the extent of the Wall's impact on daily life in this neighbourhood as well as the effect it had on the transit systems that existed at the time.

Throughout this site and former “death-strip” zone, parts of the outer Wall have either been immaculately preserved, or are indicated by a series of vertical steel bars that trace the Wall's path parallel to the street. These unevenly spaced elements simulate the impenetrable face of the Wall, but are wide enough to pass through and encourage visitors to transgress the line into the former “death-strip”, which has been revived as a greenspace. Walking alongside the Berlin Wall's lingering presence in the cityscape, one feels both the intimidating presence where the outer Wall once stood and a sense of relief that this incredibly divisive element is now registered on the site only as a memory and reminder.

<sup>24</sup> “Berlin Wall Memorial on Bernauer Strasse,” *Berlin Wall*, State of Berlin, accessed November 10, 2018, <https://www.berlin.de/mauer/en/sites/com-memorative-sites/berlin-wall-memorial>.

*Figure 2.4:*

Katherine Morawietz, *Berlin Wall Memorial* (2018).







## UNBUILDING WALLS

GERMAN PAVILION | VENICE BIENNALE 2018

Germany's contribution to the 2018 Venice Biennale was titled "Unbuilding Walls". Curated by Marianne Birthler and GRAFT to celebrate the symmetrical moment in history when the Berlin Wall had been gone for as long as it had existed, the pavilion traces the history of the Wall and thoughtfully probes the lasting impacts it has had on the city.<sup>25</sup> Designed to appear as a solid and impenetrable black wall when one first enters the pavilion, it soon becomes apparent that the installation is, in fact, a permeable illusion created by cleverly positioned panels and perspectival paint stripes. Although the Berlin Wall is the inspiration and grounding event for this exploration into "walls", the exhibition also paid considerable attention to the politically divisive walls that exist worldwide today, using text on the reverse side of the black panels to elaborate on the Berlin Wall and an adjacent wall of video testimonials contrasting the ongoing experiences of individuals living in other contested zones. The goal of the installation was to bring awareness of the impact walls have on people, and how, even if they are dismantled, physical rebuilding and social reconnecting is a challenging process. This project provides a wealth of information relating to the historical repercussions of walling and the chronic solidification of differences keeping groups separated on a global scale.<sup>26</sup> Research into this pavilion offered a starting point for my own explorations into walls, with the intent to manipulate the typical wall structure into a force of unification for people who are, or have been, divided.

**Figure 2.5** (top)  
*Unbuilding Walls*

View of the installation designed to appear as an impenetrable barrier upon entering the German pavilion.

**Figure 2.6**  
*Unbuilding Walls Panels*

Oblique view of the installation, designed as a deconstructed wall with information panels on the reverse side of each wall segment.

<sup>25</sup> Birthler et al., *Unbuilding Walls*, 12.

<sup>26</sup> Ibid., 236.

**Figure 2.5 (top):**

Jan Bitter, *Unbuilding Walls* (2018).

**Figure 2.6:**

Aliki Economides, *Unbuilding Walls* (2018).



3

# PRECEDENTS



## VIETNAM VETERANS MEMORIAL

MAYA LIN | WASHINGTON, DC, USA 1982

This memorial, while simple in its form, is extremely effective in commemorating the 58,000 American soldiers who died or went missing during the Vietnam War. Designed as a counterpoint to the tall and monumental landscape of the National Mall in Washington, D.C., the memorial does not extend above grade, and consists only of two polished black granite-clad retaining walls inscribed with the name of each soldier in chronological order by date of death. The two walls, converging at their tallest point and extending outward at an angle wider than 90 degrees, slowly taper to grade in the direction of the Lincoln Memorial to the southwest and the Washington Monument to the southeast. The entire memorial appears to be merged with the landscape, creating a depression for reflection and privacy. The polished, almost mirror-like surface of the black granite walls reflect both the park surroundings and the bodies of the visitors, drawing connections to the other historical monuments on the site and superimposing the living onto the engraved names of the lost. This design is an elegant and impactful use of a wall as a dominant formal feature, a visible structural element, and the carrier of collective memory. Acting as more than a wall inscribed with names, it serves as a retaining wall to define the cleft in the earth, a sound barrier that ensures a certain level of privacy, and the surface across which the past is reflected in the present, and alluding to the war's place within American history.<sup>27</sup>

**Figure 3.1** (top)

### *Vietnam Veterans Memorial*

View of the memorial as approached from the Washington Monument. The reflective, granite walls on which the names of those lost are engraved also act as retaining walls that create a sunken place for reflection and memory.

**Figure 3.2**

### *Vietnam Veterans Memorial Walls*

A reflection of the Washington Monument on one of the polished granite walls.

<sup>27</sup> "Maya Lin's Original Proposal," Vietnam Veterans Memorial Fund, accessed April 10, 2019, <http://www.vvmf.org/maya-lin-design-submission>.

*Figure 3.1 (top):*

Hans F., *Vietnam Veterans Memorial* (Flickr, 2013).

*Figure 3.2:*

*Vietnam Veterans Memorial* (Maya Lin Studio, n.d.).





## IGUALADA CEMETERY

ENRIC MIRALLES & CARME PINÓS | BARCELONA, SPAIN 1994

Figure 3.3

*Igualada Cemetery*

View of the columbaria forming part of the cemetery's concrete retaining walls.

Designed to replace an older cemetery on the outskirts of Barcelona, Spain, the Igualada Cemetery was designed by Enric Miralles and Carme Pinós as a place for both the living and the dead and as an intervention that merges with the landscape. The site is terraced, each level held back by thick concrete retaining walls that also act as columbaria. The overall spatial composition of the cemetery provides an open and serene place for reflection and remembrance, focused on guiding visitors to the central memorial space instead of the burial plots. The materials chosen – predominantly unornamented concrete, stone, and wood – evoke the palette of the existing landscape, making it seem as if the cemetery has always existed there. The organization of spaces, indicated by the processional pathway winding through the site, places attention on those laid to rest, while the chapel and monastery are secondary to the experience, hidden within the terraced earth. Described as a “city of the dead”, the entrance is marked by cor-ten steel poles, arranged much like a city gate, and visitors travel along a winding pathway reminiscent of the river of life.<sup>28</sup>

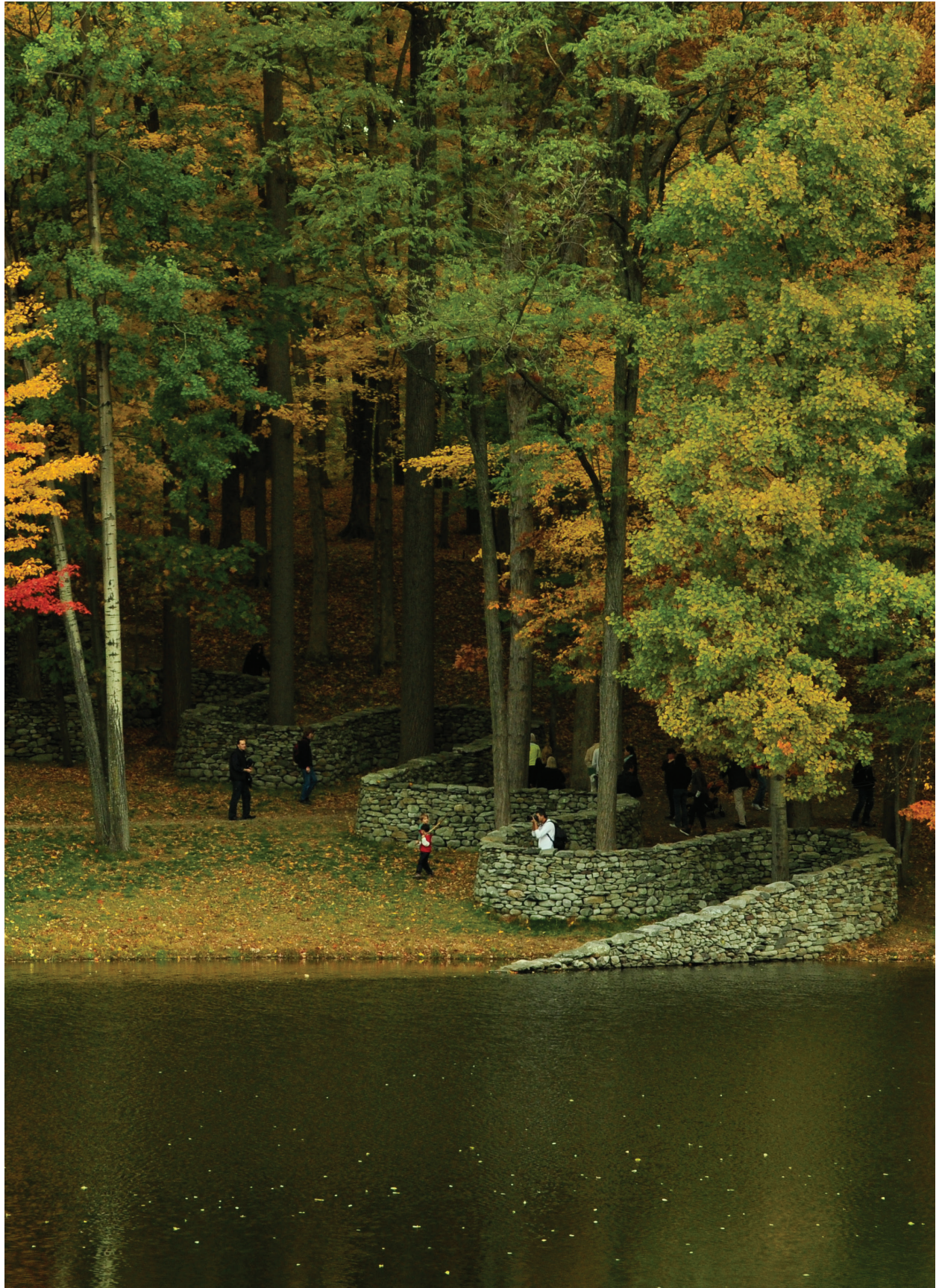
The concrete retaining walls used in this project are of particular interest, as they are the cemetery's most unique feature. These walls hold back the earth between terraced levels, but also host the cremated remains of loved ones. Their physical integration into the landscape as well as their multi-functional application provide both a programmatic and aesthetic order to the overall design scheme, and offer a reminder that all mortal remains ultimately return to the earth.

28 “Igualada Cemetery / Enric Miralles,” ArchDaily, accessed April 12, 2019, <https://www.archdaily.com/103839/ad-classics-igualada-cemetery-enric-miralles>.

Figure 3.3:

Luis E. Carranza, *Cementiri nou Igualada* (Flickr, 2012).







## STORM KING WALL

ANDY GOLDSWORTHY | NEW WINDSOR, NY, USA 1998

### Figure 3.4

#### *Storm King Wall*

View of the wall winding its way through the forest, respectfully snaking around trees before plunging into the lake and continuing its path on the opposite bank.

Also known as “The Wall that Went for a Walk” or “The Running Wall”,<sup>29</sup> this sculpture was designed to break away from the typical form and function of a wall and instead add a sense of life and agency to its otherwise static and permanent nature. Built with stones taken directly from the site along the path of a previous farm wall, this snaking stone sculpture winds around trees and into a pond before resurfacing on the other side. It was completed by artist Andy Goldsworthy and a team of builders who constructed the wall without mortar, using only the shape of the stones and their careful stacking to hold the everything together.<sup>30</sup> This outdoor landscape-scaled sculpture begins to probe the inherent nature of walls, and offers a playful example of the potential they have to transcend their conception as an element of division that keeps sides from interacting with each other. The conceptual foundation of this sculpture and the unique way in which the Storm King Wall interacts with the natural landscape are elements critical to developing the sense of place and transcendence that this thesis project aspires to. Influential in its simplicity and reverence for the landscape, the Storm King Wall offers a point of departure for developing other ways of exploring the nature of walls in the natural landscape while remaining connected to the historical influences of the site.

29 Robert Louis Chianese, “Storm King ‘Running’ Wall,” *American Scientist* 101, no. 3 (2013): 188, <https://www.americanscientist.org/article/storm-king-running-wall>.

30 “Andy Goldsworthy,” *Storm King Art Center*, Storm King Art Center, accessed October 30, 2018, <https://collections.stormking.org/Detail/objects/401>.

#### Figure 3.4:

Emily Pecot, *Andy Goldsworthy* (Flickr, 2010).



## GLOWING LINES / GATES OF LIGHT

STUDIO ROOSEGAARDE | NETHERLANDS 2014

### GLOWING LINES

Part of a series of Smart Highway innovations, this particular project focuses on using luminescent paint to illuminate highways at night. Integrated into the pavement, the paint absorbs sunlight during the day and then glows when darkness falls, creating visible lines on the ground without the need for electricity. This paint application is currently being tested in the Netherlands, with the goal of international distribution in the near future.<sup>31</sup>

### GATES OF LIGHT

Similar in intent to the Glowing Lines project, the Gates of Light consist of reflector strips that have been applied to a series of buildings framing a highway in the Netherlands. As cars drive past, their headlights reflect onto the strips, fleetingly illuminating the outlines of the buildings, then promptly returning the area to darkness once the cars have passed. This application facilitates illumination without the need for additional electricity and remains sensitive to the surrounding area, as it is only lit when a vehicle passes through.<sup>32</sup>

Each of these passive lighting applications offer points of departure for lighting integration within the built highway landscape, with particular emphasis on energy conservation. Relatively simple in construction, they are innovative projects that position the automobile driver as the catalyst of the interactive experience.

**Figure 3.5** (top)  
*Glowing Lines*

View of the illuminated highway at night.

**Figure 3.6**  
*Gates of Light*

View of the road illuminated at night.

31 "Glowing Lines," *Studio Roosegaarde*, accessed March 20, 2019, <https://www.studio Roosegaarde.net/project/glowing-lines>.

32 "Gates of Light," *Studio Roosegaarde*, accessed March 20, 2019, <https://www.studio Roosegaarde.net/project/gates-of-light>.

*Figure 3.5 (top):*  
Studio Roosegaarde, *Glowing Lines*.

*Figure 3.6:*  
Studio Roosegaarde, *Gates of Light*.





## CITYLINK SOUND TUBE (LIGHTING)

ELECTROLIGHT | MELBOURNE, AUSTRALIA 2017

**Figure 3.7**  
*CityLink Sound Tube*

View of the LEDs integrated into the tunnel structure illuminating the highway with a rainbow pattern for the enjoyment of drivers passing through.

Originally designed by Denton Corker Marshall as a sound barrier within a larger infrastructural highway project, the Sound Tube is an integral part of Melbourne's urban identity serving as the gateway into the city. Built in 1999, it consists of steel arches that envelop the highway as it approaches the city center, with one side enclosed to reduce the noise of passing cars. In 2017, the Sound Tube underwent renovations to enhance its visual appeal. Lighting strips were integrated into each arch, highlighting the architectural structure of the "tube" and making this iconic piece of infrastructure easier to appreciate during the day and at night. The LED units are individually controlled to offer the maximum amount of variation in colour schemes and combinations, enabling the Sound Tube to pique the interest of those passing through while announcing events taking place in the city.<sup>33</sup>

This small modification to an already functional piece of highway infrastructure creates an entirely new and more pleasant space for drivers to inhabit. The endless possibilities of colour combinations continually renew the space and keep it sufficiently illuminated without the need for additional lighting elements. Although the LED-lighting system was added decades after the tube's construction, its integration harmonizes with the existing structure and, as a result, has brought this old icon seamlessly into the present.

<sup>33</sup> "CityLink Sound Tube: Melbourne, Australia," *ElectroLight*, accessed January 18, 2019, <http://electrolight.com/project/citylink-soundtube/>.

*Figure 3.7:*  
Scotty Mac, *Late Night Cruising down the [Flemington Sound Tube]* (2018).



4

SITE







Built in the years before the Second World War, the Autobahn 115 provided a southwestern connection between Brandenburg and Berlin's city centre. The highway's path originally crossed the regional border between Berlin and Brandenburg at the town of Dreilinden. However, by 1945 this border came to represent the more politically-loaded ideological divide between democratic West Berlin and socialist East Germany. By 1959, the Soviet East was controlling passage along the highway A-115 at this border crossing with a fortified checkpoint over the Teltow Canal near Dreilinden. This border crossing proved difficult to regulate, as the path of the political boundary obliged those using the highway to briefly re-enter the territory they had just left before completely crossing to the other side. After the Berlin Wall's construction in 1961, the original border crossing became too difficult to police and the highway was subsequently diverted around this geopolitical quirk to allow for a more sophisticated Soviet border checkpoint, renamed the Checkpoint Dreilinden-Drewitz, which was built along the new route. Just across from this border, Checkpoint Bravo was similarly constructed by the Allies to police those entering and leaving West Berlin.

Until 1989, when the Berlin Wall came down and movement between territories became unrestricted once again, these border security checkpoints were responsible for keeping track of those leaving and entering their respective sides, as well as ensuring that no one was being smuggled in or out. The Allied Checkpoint Bravo, in contrast to its Soviet counterpart, consisted of four brightly-coloured structures designed by the architect Rainer G. Rümmler in an attempt to alleviate the stressful and time-consuming experience of crossing into East Germany. Today, these structures are protected by the City of Berlin as heritage sites, although the iconic refuelling stations and rest-stop/restaurant remain vacant. The Soviet checkpoint, however, has been entirely demolished and the site has been redeveloped to support a large business park, named the Europarc Dreilinden. Only a single watchtower remains on the site, transformed into a memorial to the checkpoint, which serves as the only indication of the area's historical significance.

The site chosen for this thesis intervention is a three-and-a-half kilometre stretch of highway, or, when experienced in a vehicle, a two-minute drive. It begins at the place where the redirected A-115 diverges from its original path and terminates at the border boundary between Brandenburg and Berlin, just before one encounters the buildings of the former Checkpoint Bravo. The site was chosen for its historical relationship to the Berlin Wall as well as its manifestation as another type of dividing element that cuts through the landscape, separating those on either side. Located at the edge of Berlin, it is a gateway removed from the dense concentration of memorials and traces of history within the city center, thus serving to engage those entering and leaving the city in an experience of transformative interaction.

**Figure 4.1**

*Aerial View of the Existing A-115 Highway*

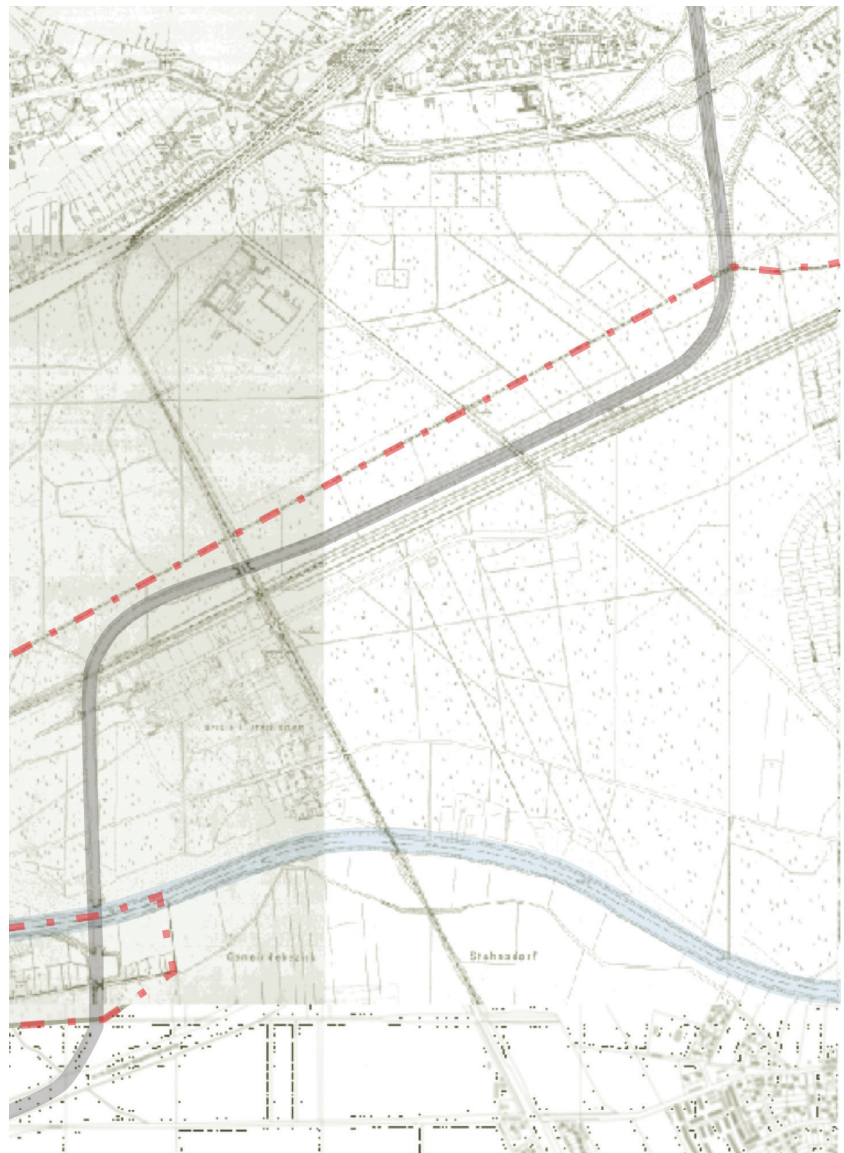
An aerial image of the highway and surrounding landscape as it approaches Berlin from the south, including the Europarc Dreilinden (on the middle-left) and the vestiges of the former Checkpoint Bravo (top).

**Figure 4.1:**

Google Maps, *Autobahn-115 Berlin* (Accessed 2019).

Modified by Katherine Morawietz.

- BERLIN-BRANDENBURG  
BORDER
- A-115 HIGHWAY
- BERLIN WALL(S)
- TELTOW CANAL



**Figure 4.2** (left)  
*Map of Highway A-115 in 1959*

A map of the highway's route as it was originally constructed, crossing the Teltow Canal near the town of Dreilinden.

**Figure 4.3**  
*Map of Highway A-115 in 1979*

A map of the highway's route as it was diverted around the Berlin Wall to allow for better security measures and larger checkpoint infrastructure. The blue lines indicate the inner and outer walls, the grey strip indicates the highway, and the red line indicates the East-West political border.



**Figure 4.2 (left):**  
HistoMapBerlin, K4-1959 (Landesarchiv Berlin,  
Accessed 2019).

**Figure 4.3:**  
HistoMapBerlin, K4 - 1979 (Landesarchiv Berlin,  
Accessed 2019).





## ALLIED CHECKPOINT BRAVO

RAINER G. RÜMMLER | 1971

**Figure 4.4** (top)  
*Checkpoint Bravo*

View of the former Checkpoint Bravo buildings, looking north from the Berlin-Brandenburg border in 2018.

**Figure 4.5**  
*Raststätte Dreilinden*

View of the iconic rest-stop/restaurant in its current state of disrepair.

Once the Berlin Wall had been erected, it became necessary to establish points of access between the East and West. Aside from the three air corridors permitting aircraft from flying over East Germany to West Berlin, 14 public checkpoints were eventually erected along the Wall where pedestrian, vehicular, railway, and/or waterway traffic could cross the border.<sup>34</sup> Of these, only seven crossings were outside of central Berlin located on what was known as the “outer ring.” One of the major checkpoints between West Berlin and East Germany was Checkpoint Bravo/Dreilinden-Drewitz, situated on the southwestern edge of the city’s limits. It encompassed two checkpoints on either side of the Wall: one for West Berlin (Bravo) and the other for East Germany (Dreilinden-Drewitz). They were established on either side of the border along highway A-115, which was one of three designated roads allowing vehicles to drive through East Germany to access either West Berlin or West Germany. Travellers were subsequently subject to hours of waiting, surveillance, searches, and interrogations before they could cross.

In an attempt to alleviate the stress of travelling across the border, German architect Rainer Gerhard Rümmler was tasked with designing a rest stop comprised of a restaurant and two gas stations on the West Berlin side.<sup>35</sup> Known as the Raststätte Dreilinden, the restaurant was opened in 1973 along the highway and served the people of West Berlin as they waited to pass through the checkpoint. There is very little information available about the building after its opening, though it seems to have been closed down once the checkpoint became obsolete at the time of German reunification. Since then, the building has remained vacant and various attempts at redevelopment have been unsuccessful. The entire checkpoint area is now a protected heritage site and only one of the original border control buildings is still in use as a truck customs control point for goods entering and leaving Berlin. A short distance south of the checkpoint, at the place where the inner wall doubled back on itself to funnel cars into the checkpoint, an industrial business park has been built. Named the Europarc Dreilinden, its location on the former East side was chosen as a result of cheaper land prices and proximity to the highway.<sup>36</sup> Aside from a small memorial to the checkpoint within an old Soviet watchtower preserved on the site, there is no connection between the new Europarc development and its historical location at the edge of the former Wall.

34 “The Wall inside the city,” *Berlin Wall*, State of Berlin, accessed November 8, 2018, <https://www.berlin.de/mauer/en/route/the-wall-inside-the-city>.

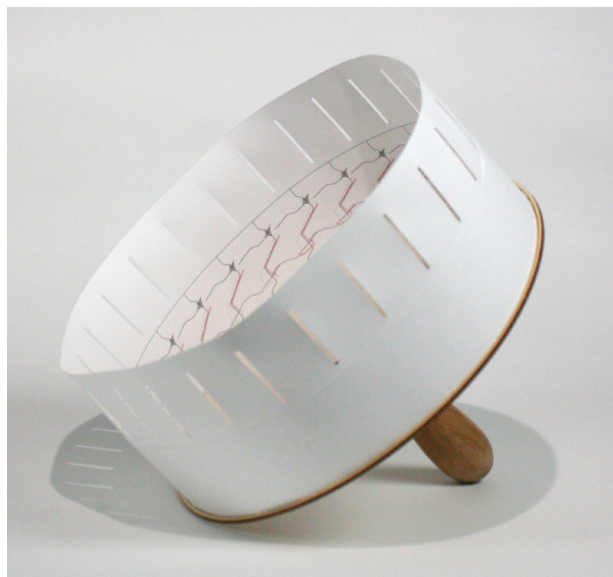
35 “Planungs-, Bauphase und Eröffnung am 3. April 1973,” *Weiterbauen ’70*, accessed January 30, 2019, <https://web.archive.org/web/20121115144618/http://siebzigerjahre.laufwerk-b.de:80/einzel-hausuntersuchungen/raststaette-dreilinden>.

36 Birthler et al., *Unbuilding Walls*, 212.

*Figure 4.4 (top):*  
Katherine Morawietz, *Checkpoint Bravo* (2018).

*Figure 4.5:*  
Katherine Morawietz, *Raststätte Dreilinden* (2018).





# SITE MODEL

A zoetrope is a rotating device that tricks the eye into thinking it is seeing a moving image as it spins. First described by William Horner in 1834,<sup>37</sup> the design of this manually-operated object has since undergone many variations of its original form in tandem with advancements in moving-image technology. The device consists of a squat, open-topped cylindrical drum whose base is fastened to a handle, enabling the user to hold the object with one hand, and touch its side with the other to propel its whirling motion. On the cylinder's interior surface, cyclically sequenced images bearing slight variations ring the bottom half of the drum and slits a few millimetres in width that are positioned at regular intervals above each image, ring the upper half. The animation is viewed by spinning the drum around the axis of its centrally-placed handle and peering through the slits as they quickly pass. The effect of the moving image is achieved when the spaces between the openings obstruct the view of the animation on the inside, tricking the brain into thinking the animation is continuous.

My thesis project, entitled Mauer-Frei, or "Wall-Free", investigates the fundamental architectural element of the wall at a former vehicular border crossing of the Berlin Wall. Designed along 3.5 kilometres of highway, it is a project that is to be experienced at the speed of those driving through as well as by those walking, cycling, or boating at specific points. Due to the length of the site and the challenges of representing the project at a legible scale, a conventional site model detailing the proposed intervention was not a viable option. This zoetrope, therefore, is designed as a spatio-temporal site model representing the sequence of infrastructural changes that occurred from 1959 to present, each of which are a result of the sociopolitical divide concretized by the Berlin Wall's imposition on the landscape. The object's functional characteristics encompass the major ideas of my thesis project, from the individually focused yet collectively experienced intervention to the fundamentally non-static occupants of the site. The zoetrope's movement itself is also representative of the unstoppable march of time, as the images collapse almost sixty years spatial and political transformation into a quick succession of key moments. This object is intended to provide a brief introduction to the history of the thesis site and create a memorable experience in line with the goals of my proposed intervention. In tandem, as a device that one interacts with like a toy, the zoetrope-site model embodies the playful sociocultural agenda of the proposed intervention's subversion of the divisive power of walls.

**Figure 4.6** (top)  
*Zoetrope and Stand*  
The zoetrope on its stand.

**Figure 4.7** (bottom left)  
*Zoetrope Site Model*  
The interior ring of maps charts the transformation of this portion of the A-115 Highway between 1959 and 2019.

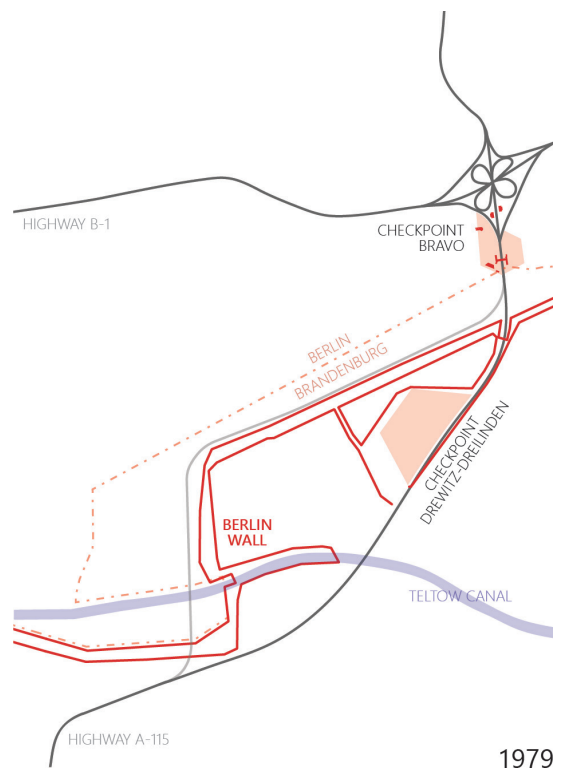
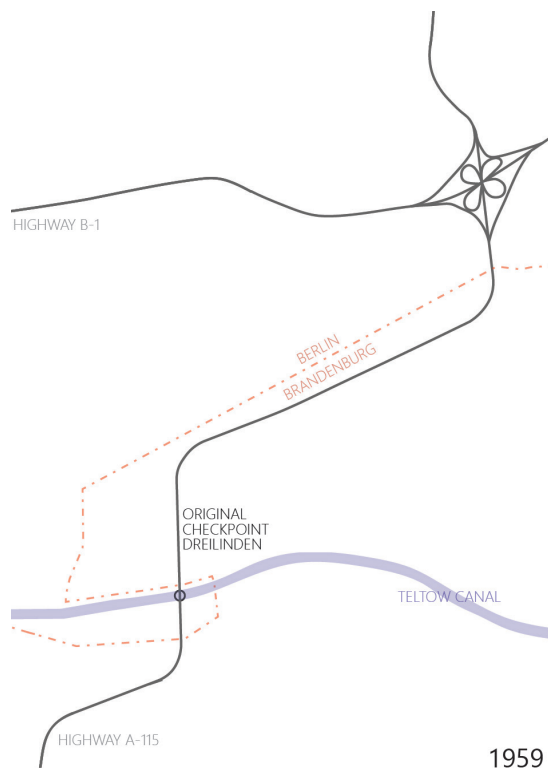
**Figure 4.8** (bottom right)  
*Viewing the Animation*  
When the zoetrope is spun, the openings blur together creating the illusion that the images on the inside of the drum are animated.

37 Leo Enticknap, *Moving Image Technology: From Zoetrope to Digital* (London: Wallflower, 2005), 7.

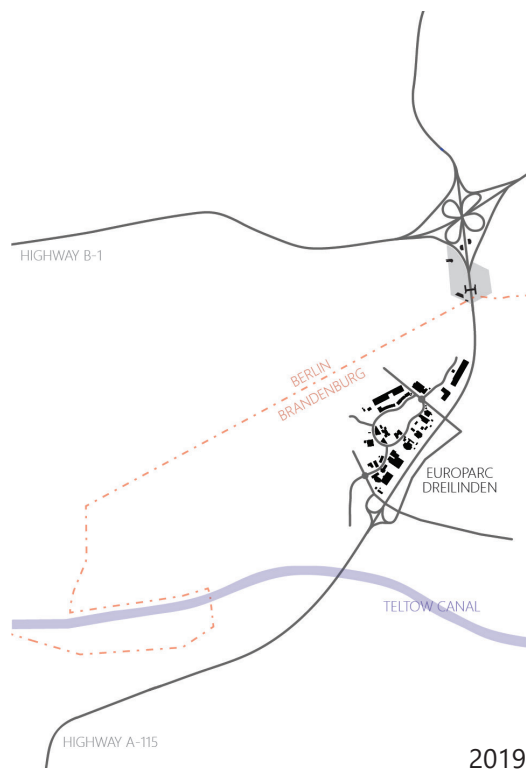
*Figure 4.6 (top):*  
Katherine Morawietz, *Zoetrope and Stand* (2019).

*Figure 4.7 (bottom left):*  
Katherine Morawietz, *Zoetrope* (2019).

*Figure 4.8 (bottom right):*  
Katherine Morawietz, *Zoetrope View* (2019).







**Figure 4.9** (far left)  
*The A-115 in 1959*

A map of the highway's path as it existed before the Berlin Wall, featuring a small checkpoint to regulate movement between the East and West occupied zones.

**Figure 4.10** (left)  
*The A-115 in 1979*

A map showing how the highway was rerouted after the construction of the Berlin Wall to avoid the need to cross through the peninsula of West Berlin in East German territory.

**Figure 4.11**  
*The A-115 in 2019*

A map showing how the former Soviet checkpoint was redeveloped into a business park after the fall of the Wall.

*Figure 4.9 (far left):*  
Katherine Morawietz, *A-115 1959* (2019).

*Figure 4.10 (left):*  
Katherine Morawietz, *A-115 1979* (2019).

*Figure 4.11:*  
Katherine Morawietz, *A-115 2019* (2019).

*Figure 4.12 (pages 48-49):*  
Katherine Morawietz, *Zoetrope Animation* (2019).

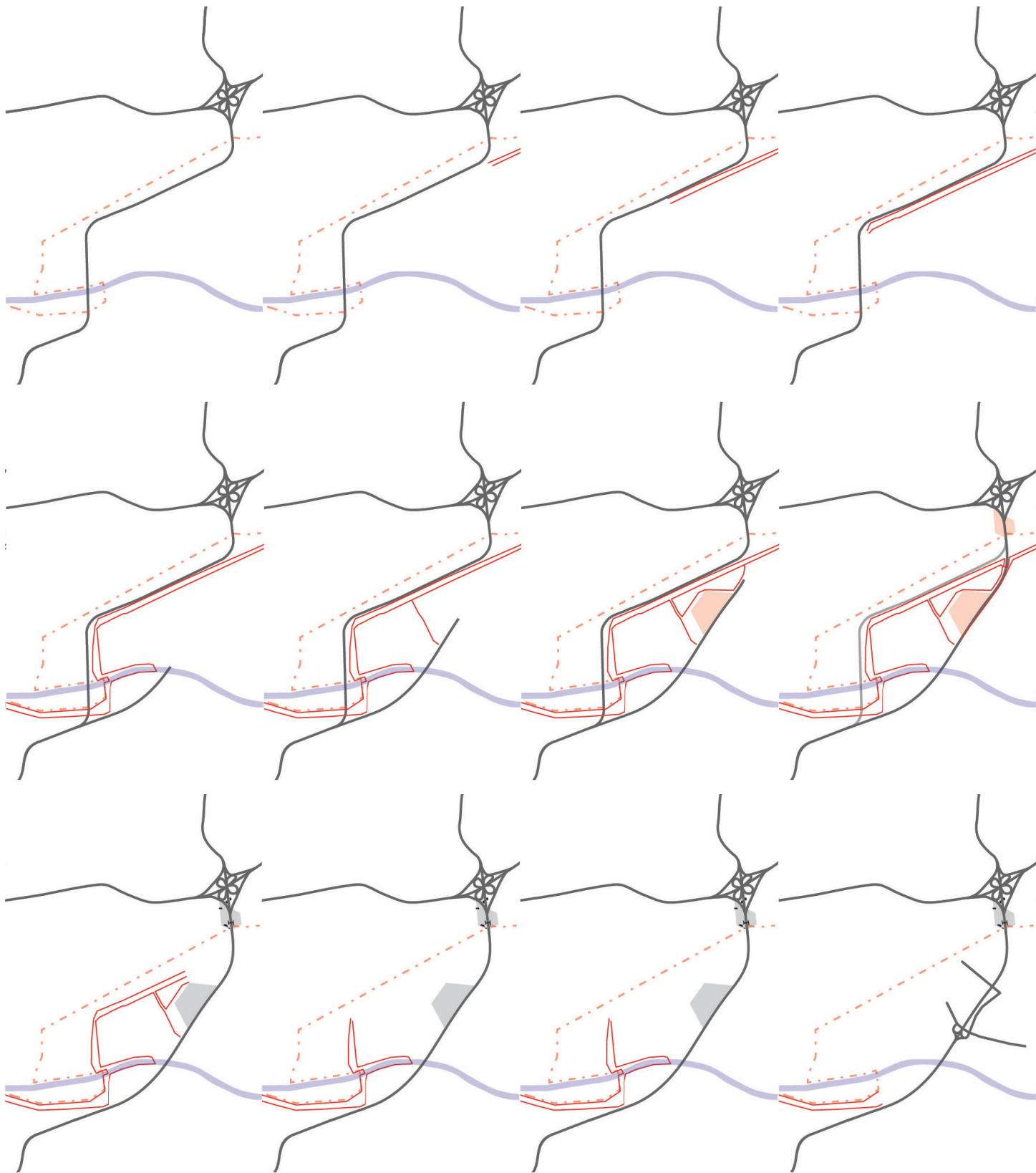
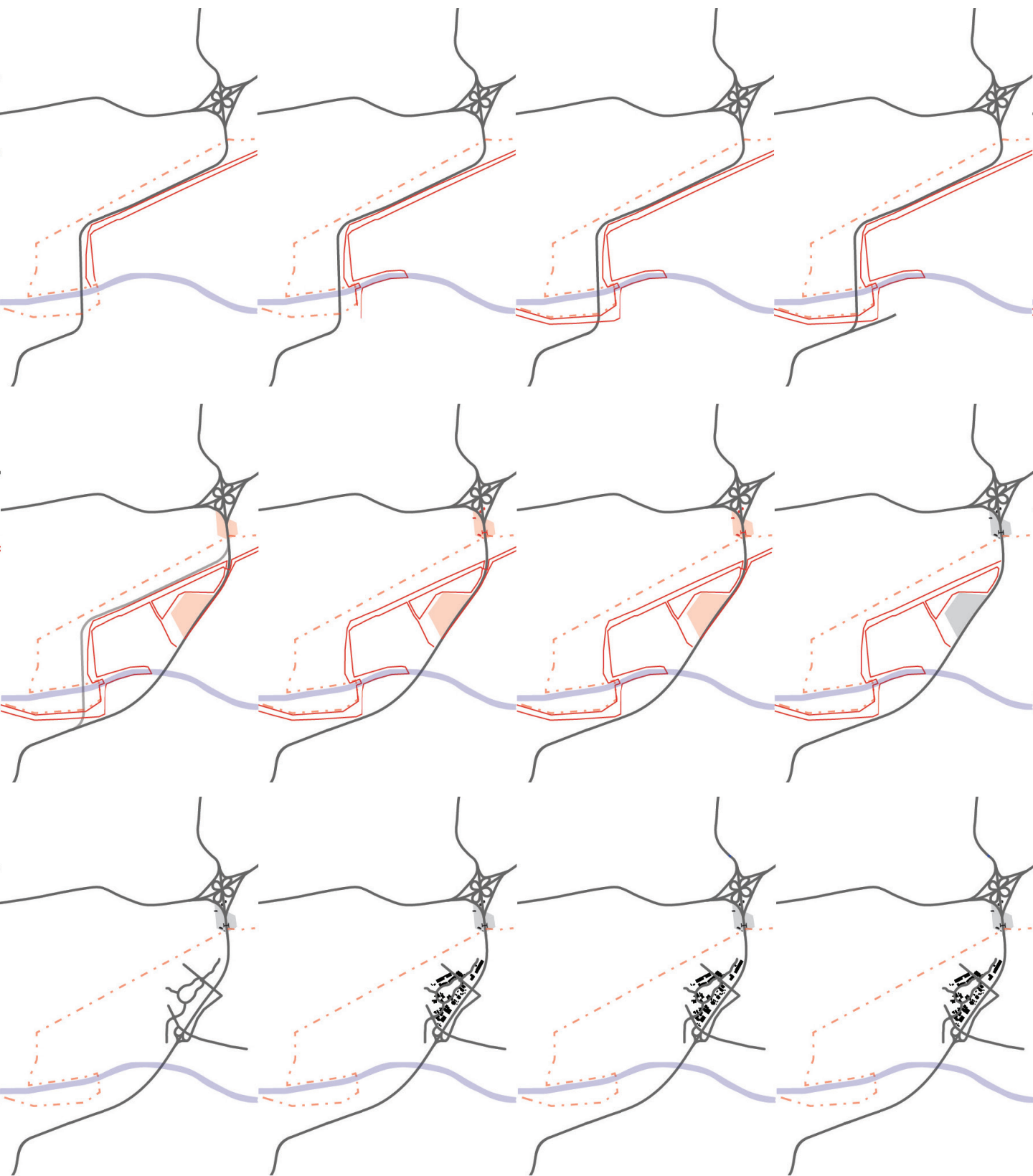


Figure 4.12  
*Zoetrope Animation Progression*





5

# INTERVENTION





## MAUER-FREI

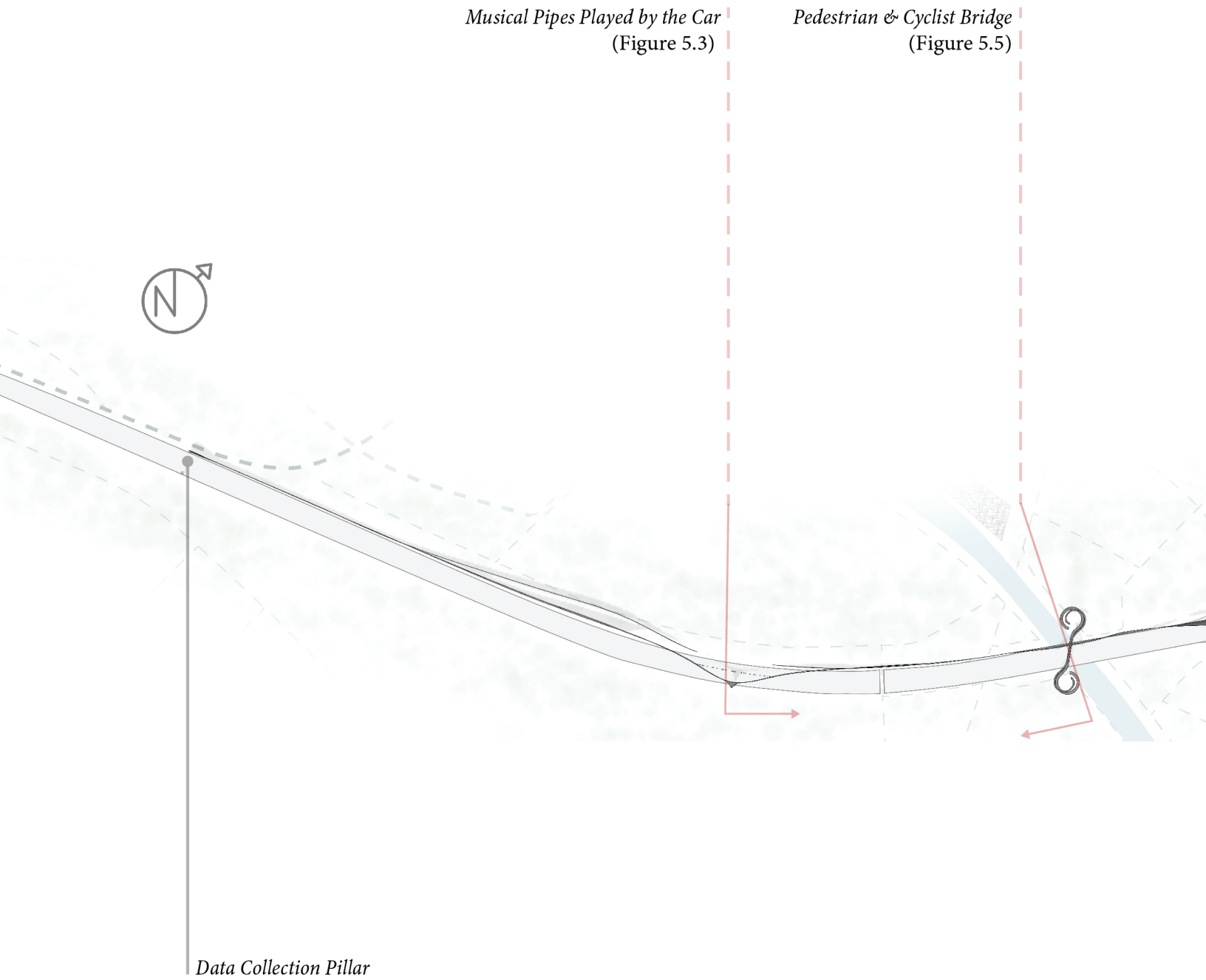
The site follows the section of highway A-115 where it was rerouted from and reconnected to its original path, just before the boundary between Berlin-Brandenburg and former West Berlin-East Germany. The intent to subvert the segregating force of walls, in this case the physical manifestation of the Berlin Wall, extends to the recognition of the highway as another kind of wall; one that is inhabited by vehicles driving at high speed and therefore manifesting in the landscape as an element that cannot be traversed. The purpose of this intervention is to subvert the negative associations of the border crossing in general, and at this location in particular, by giving drivers the opportunity to participate in a collective experience of transformation resulting from the individual passage of vehicles through the site. At particular moments, pedestrian and cyclist interaction is also celebrated, generating a layered composition across the two minutes it takes to traverse from one end of the intervention to the other. When driving north into Berlin, the interventions begin with the typical shape of the Berlin Wall that shifts to become various reinterpretations of the wall's potential as an object of wonder, energy, music, collective interaction, and habitable space. Depending on the time of day, season, and traffic conditions, the experience varies according to the ever-changing circumstances of the drive through. Designed as a crescendo of sound and scale in the northward direction, the site is bookended by musical moments – one generated largely by the moving cars and the other the result of human participation – to bring attention to the history of the place and create an experience that responds directly to the diverse inhabitants of Berlin, beyond borders, divisive infrastructure, or sociocultural differences. It encourages the positive, uplifting occupation of a formerly inaccessible and foreboding place and engages each individual as a contributor to the overall narrative and experience of the collective.

**Figure 5.1**

*Mauer-Frei Site Plan*

Section cuts corresponding to elaborated Figures are indicated in red.

Other programmatic elements of note are indicated in black.



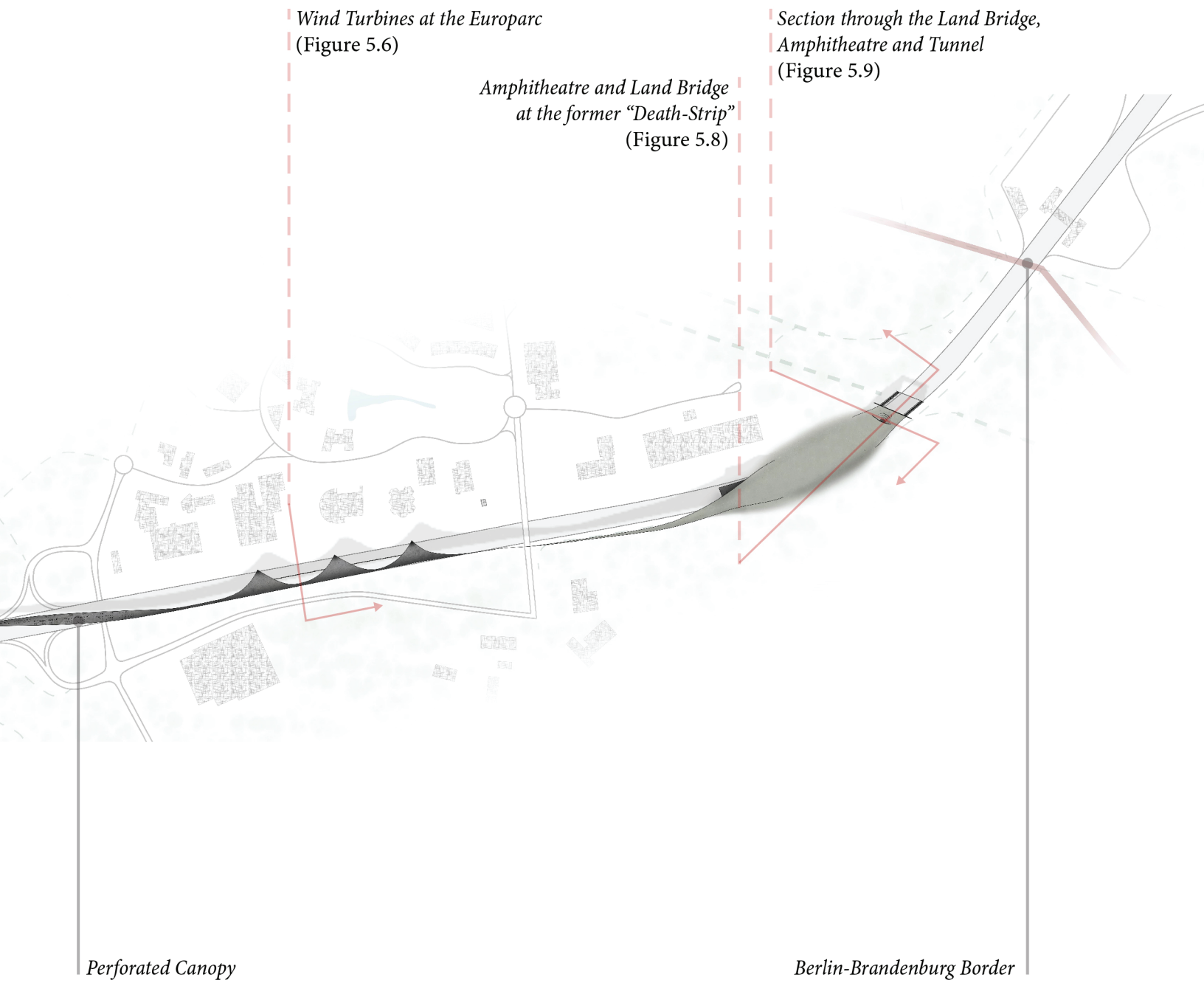
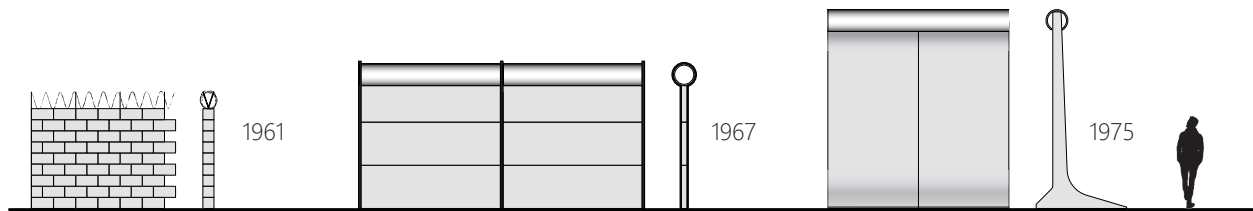


Figure 5.1:  
Katherine Morawietz, *Mauer-Frei Site Plan* (2019).





**Figure 5.2**  
*Structural Progression of the Wall*

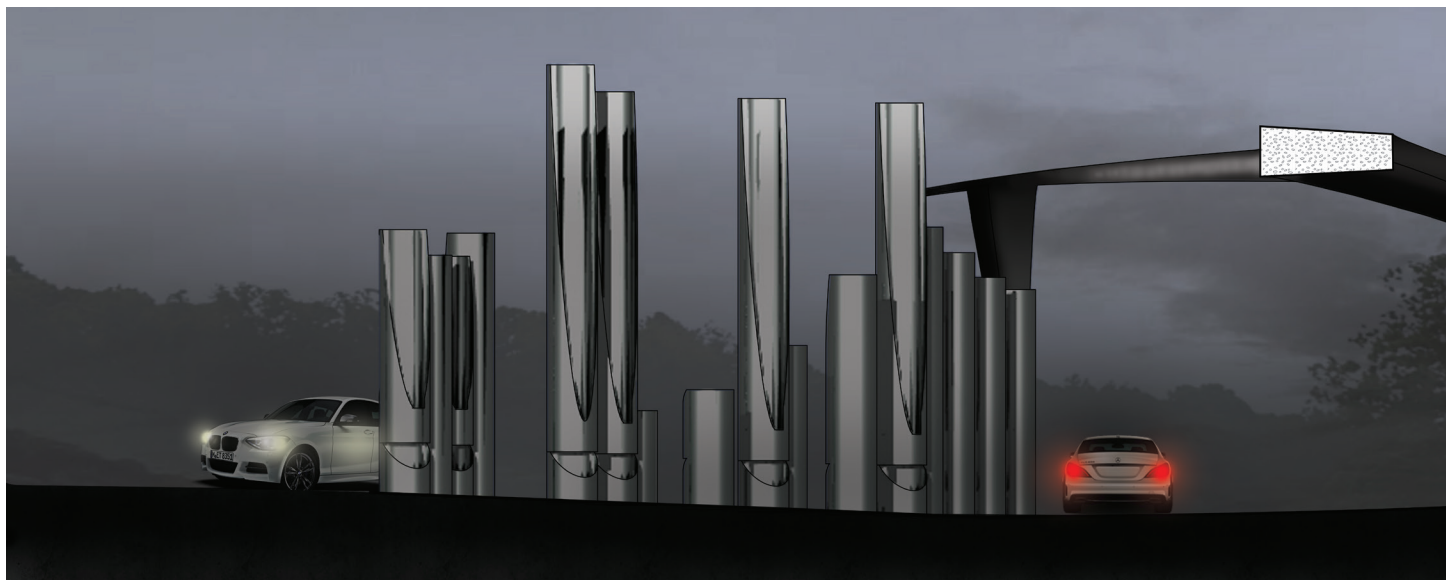
A visual representation of the three major structural iterations of the Berlin Wall over its lifetime. From mortared cinder blocks in 1961 to prefabricated concrete panels by 1989, the Wall's structure progressively increased in strength and height.

Derived from the consistent material used in the Berlin Wall's various iterations, concrete was chosen as the primary construction material with which to achieve the designed interventions along the site. Over the course of its 28-year presence, the Berlin Wall went through three major iterations, each a more sophisticated concrete barrier than the last. When the Wall was erected in 1961, it was roughly built with readily-available concrete blocks that were cemented together and crowned with a string of barbed wire to deter anyone who might have considered jumping over. Over the next six years, the concrete block walls were systematically replaced with rectangular prefabricated concrete slabs with steel supports. The slabs were stacked three high and topped with a concrete tube in place of barbed wire, which effectively prevented anyone attempting to clamber over the top. By 1975, the Wall's final iteration was comprised of L-shaped prefabricated concrete elements topped with a concrete tube. The use of concrete throughout the Berlin Wall's lifetime developed as concrete technology also developed in tandem with technological innovations in concrete construction, beginning with a rudimentary stacked wall and progressing to a sophisticated prefabricated system cemented in the landscape.

Working from this historically grey and imposing concrete face, the intent to not only subvert the wall's divisive force but also its inherently cold and featureless materiality was important. For these reasons, the series of interventions that weaves along the highway constitute an interconnected ribbon of concrete, pushing the limits of today's means of fabrication and expressive potential. Using predominantly Ultra-High Performance Concrete (UHPC) to achieve its structural ambitions, the proposed intervention serves as a new yet radically re-imagined iteration of the Berlin Wall, subverting its original form and function to positively transform the narrative of the wall's legacy in the city.

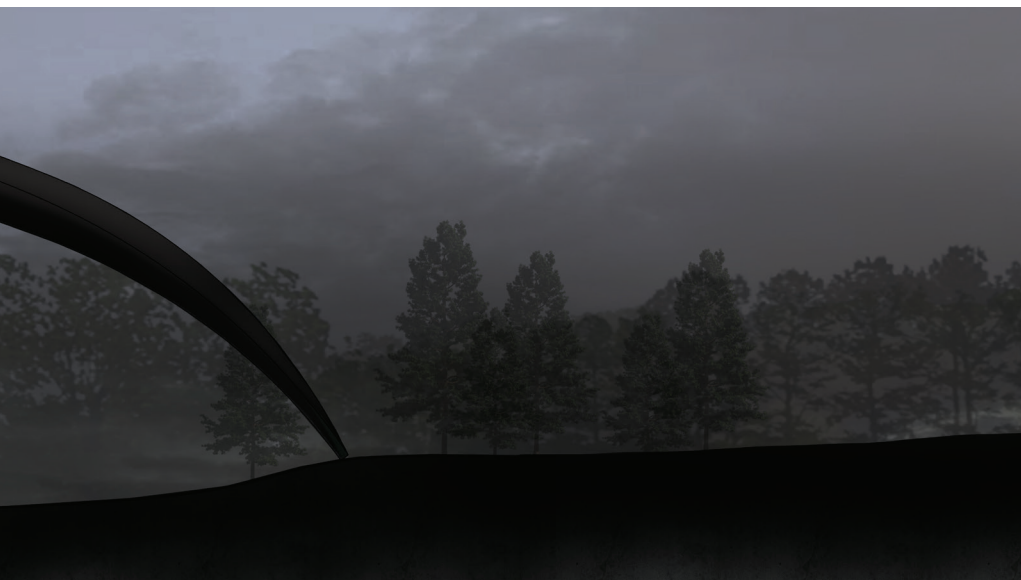
*Figure 5.2:*  
Katherine Morawietz, *Berlin Wall Progressions*  
(2018).





♩ = 80

8



The generation of sound and music are present throughout the A-115 highway intervention, and are especially evident at either end of the site. In designing the “Mauer-Frei” sequence, special focus was paid to how drivers could create and/or encounter music through the act of driving. The primary source of musical inspiration for the Musical Pipes is the song “*Die Sonate vom Guten Menschen*” (“Sonata for a Good Man”), composed by Gabriel Yared for the movie “*Das Leben der Anderen*” (“The Lives of Others”) by Florian Henckel von Donnersmarck in 2006. This film offers a fictional narrative of life on the East side of the Wall from the point of view of a Stasi officer who begins to question his loyalties to the Soviet state. The song was chosen as an homage to former East Berlin, where the proposed interventions sit, and for its resonance with the psychological complexities of divided Berlin.

When driving North, the first musical interlude occurs as the road curves toward the Teltow Canal. At this particular moment, the existing sound barriers open briefly before continuing along on the southbound lanes. It is in this opening between sound walls that 28 steel pipes stand in the median of the highway, their different heights relating to their pitch. Arranged in a specific way to emulate the correct tempo and progression of notes, the two sets of 14 pipes face oncoming traffic in each direction and rely on the prevailing southwestern winds combined with the movement of air from passing vehicles to play a simplified excerpt of “*Die Sonate vom Guten Menschen*.”

The second musical moment occurs above the on-/off-ramp from the A-155 to the adjacent Europarc Dreilinden. The sound barrier wall-ribbon alongside the southbound lanes arcs overhead, creating a canopy that is perforated by an array of openings which let light pass through to dapple the highway below. These openings are arranged in the note-clusters of the sheet music for the “*Sonate*”, marking the only place of vehicular interchange along the chosen stretch of highway.

**Figure 5.3** (top)  
*Musical Pipes Played by the Car*

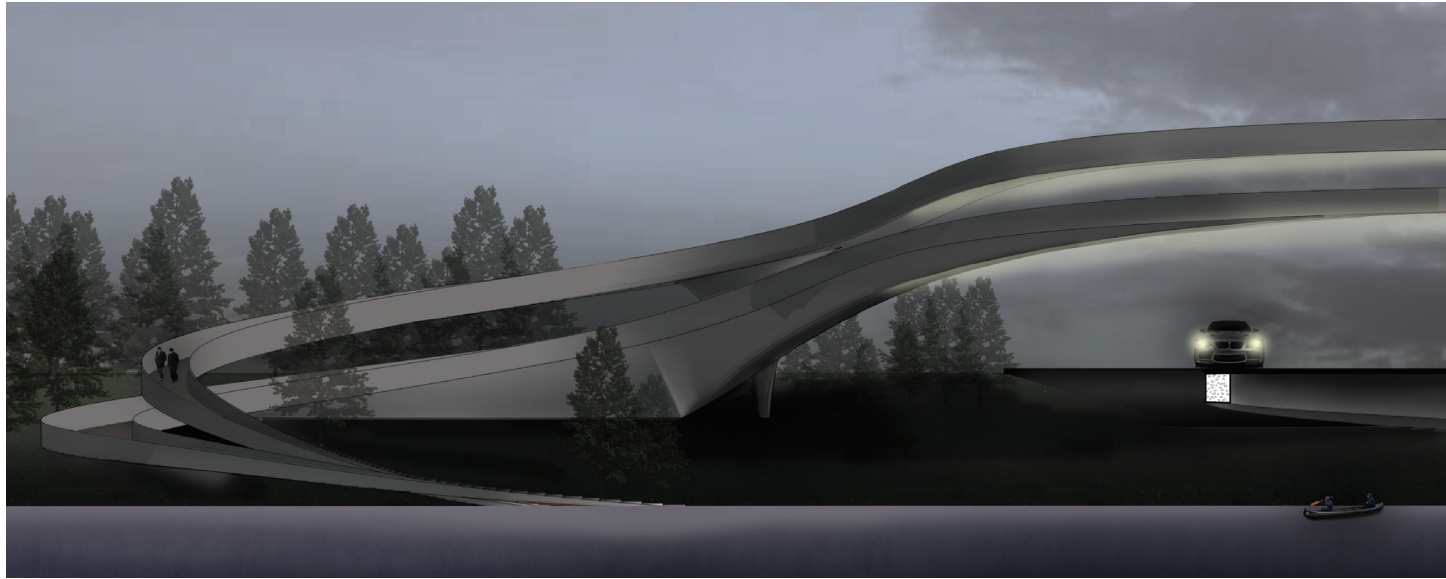
A sectional rendering of the Musical Pipes, illustrating the proximity of cars to the pipes and their position in the median to be played by vehicles passing in both directions.

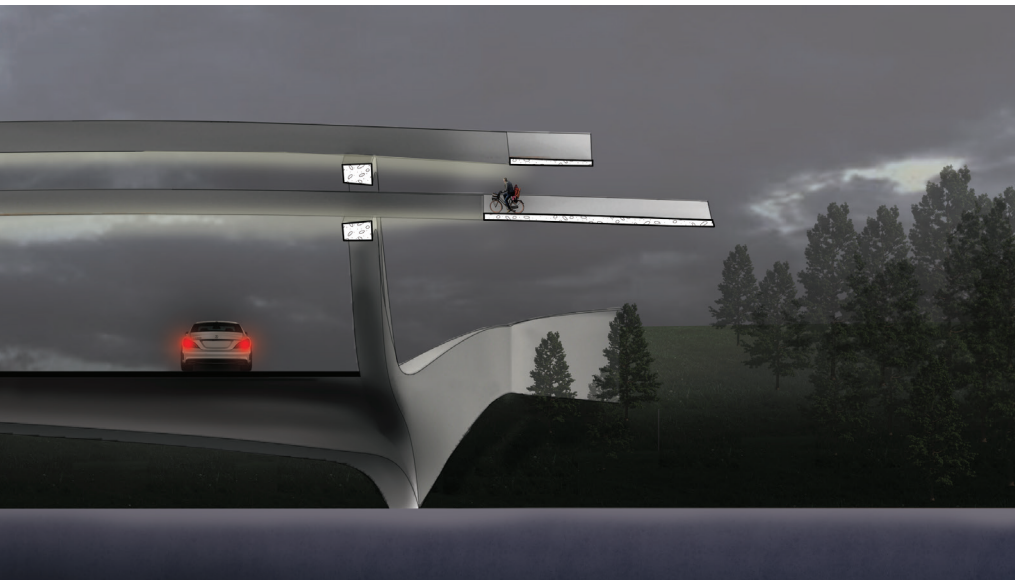
**Figure 5.4**  
*Pipe Height vs. Pitch*

A diagram illustrating how the height of each metal pipe on the highway corresponds to a specific pitch, derived from an excerpt of “*Die Sonate vom Guten Menschen*” composed by Gabriel Yared.

*Figure 5.3 (top):*  
Katherine Morawietz, *Pipes Section* (2019).

*Figure 5.4:*  
Katherine Morawietz, *Music-Pipe Relationship* (2019)



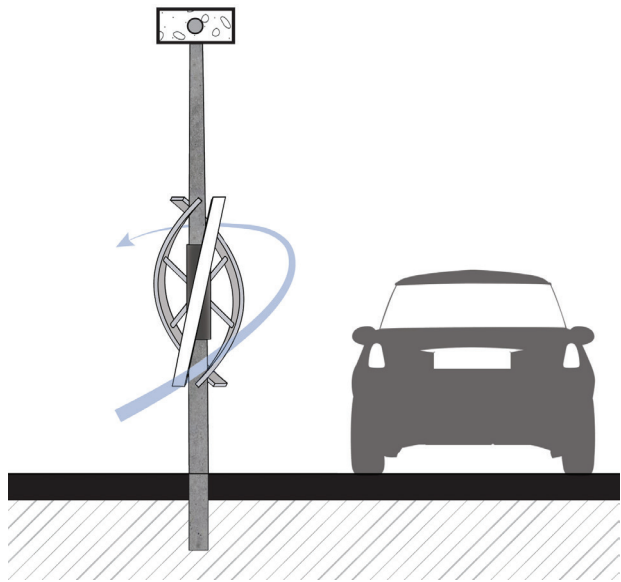


**Figure 5.5**  
*Pedestrian & Cyclist Bridge*

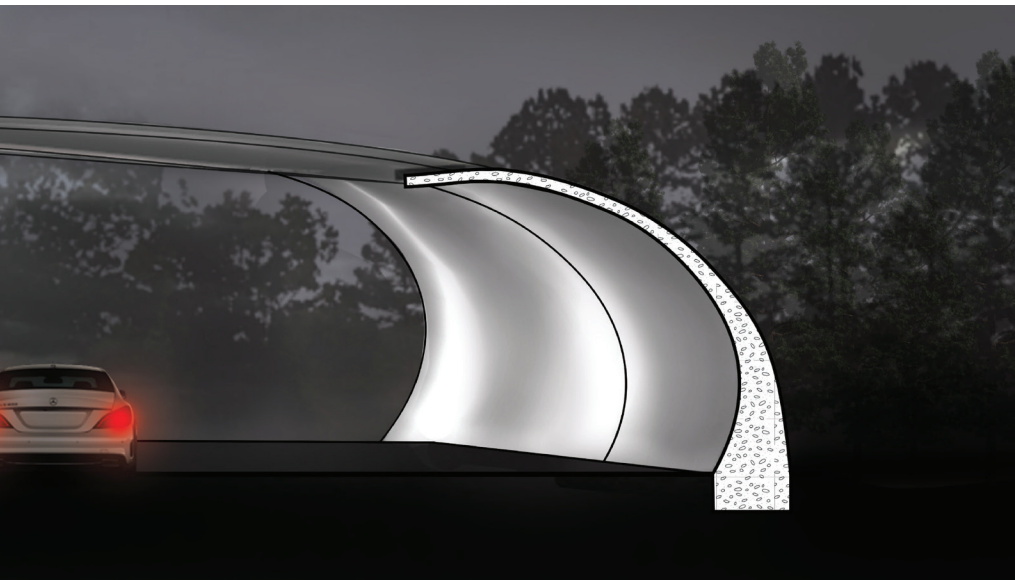
A sectional rendering (looking south) of the Pedestrian and Cyclist Bridge, illustrating the vertical relationship between four modes of transportation as the highway crosses the Teltow Canal.

At the place where the highway crosses the Teltow Canal, the original bridge structure has been replaced by a more integrated concrete system that supports both the existing roadway as well as two new layers of crossing arcing above the highway. Vertically stacking four modes of transportation – i.e., boating, driving, cycling and pedestrian – the bridge primarily acts as a means for trail-users to conveniently cross the canal while participating in the larger experience of the new infrastructure, in a safe and inclusive way. Two separate paths, one for cyclists and the other for pedestrians, lift off the ground and follow curving paths before touching down on the diagonally opposite bank, in keeping with the meandering character of the trails the bridge serves. To date, throughout the site, pedestrian access has been limited to the zones adjacent to the highway in the form of forest paths, however this new elevated crossing presents an opportunity for those traversing the highway to enjoy greater access to the surrounding forest while visually connecting to the ephemeral presence of other users.

*Figure 5.5:*  
Katherine Morawietz, *Bridge Section* (2019).







**Figure 5.6** (top)  
*Wind Turbines at the Europarc*

A sectional rendering illustrating the integration of wind turbines along the highway and the principal mode of energy harvesting.

**Figure 5.7**  
*Wind Turbine*

A diagram illustrating the push of air from oncoming vehicles that is used to propel the blades of the turbine, generating energy for use along the site.

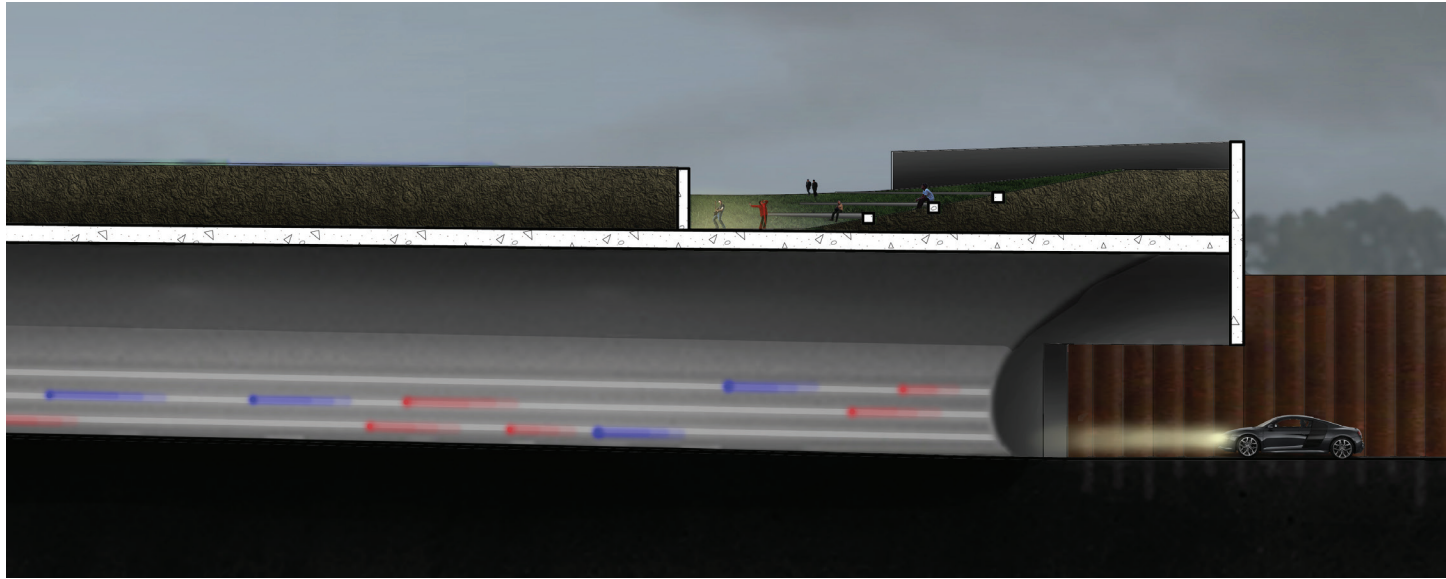
Along the part of the highway passing the Europarc Dreilinden, the “Mauer-Frei” wall supports and is supported by two sets of wind turbines, which are responsible for transforming the off-drift air from cars into kinetic energy. The turbine blades are strategically placed to be in direct contact with the greatest volume of moving air produced by passing cars. This is just one aspect of energy collection present along the site, contributing to the closed-loop system that maintains key lighting and sound features. Although placed within the median to harness the air from traffic traveling in both directions, the turbines are also free of any barrier on the western side, allowing for the southwestern prevailing winds to contribute to their energy production. The location of the wind turbines across from the Europarc was chosen to highlight the relationship between energy consumption and production, as this stretch of highway is busy during the week with traffic heading to and from the business park. The energy collected would be stored within the structural voids of the land bridge and used primarily to power the lighting display within the tunnel as well as lighting features in the land-bridge park above.

*Figure 5.6 (top):*

Katherine Morawietz, *Europarc Section* (2019).

*Figure 5.7:*

Katherine Morawietz, *Wind Turbine* (2019).





**Figure 5.8**

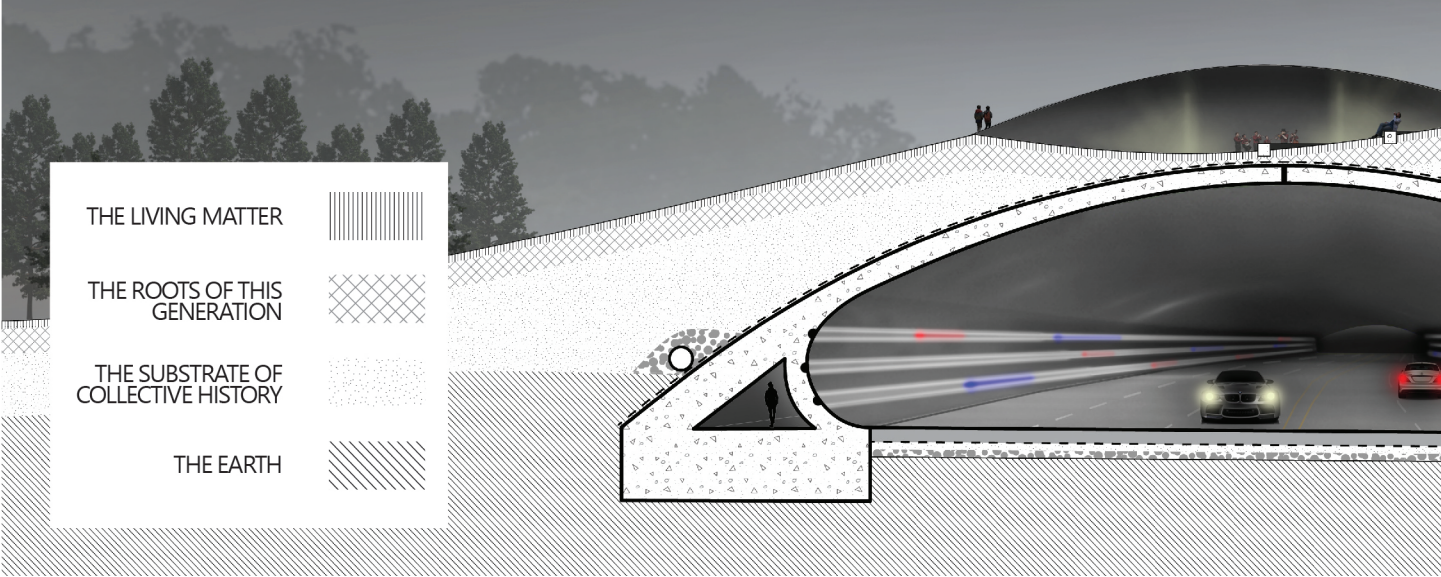
*Amphitheatre and Land Bridge at the former “Death-Strip”*

A sectional rendering representing the spatial experience before and within the former “death-strip” zone.

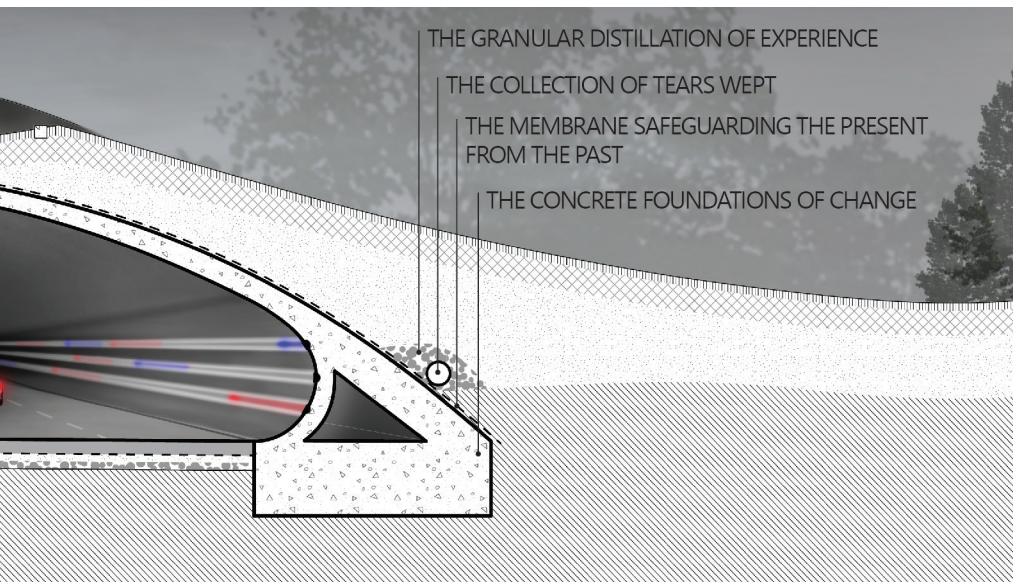
As the new wall continues past the Europarc, it widens and arcs to become a tunnel extending over the highway. This concrete tunnel acts as the supporting structure for the grassy land bridge above, which in turn, connects the land on either side of the highway. The tunnel is designed to project noise toward its northern-most end and create a crescendo of sound as one approaches the section of the highway that was once part of the former “death-strip”. Coloured LED light displays embedded in the lower portion of the arched walls of the tunnel, register the passage of cars in each direction through the site as recorded at the southern boundary marker 28 hours prior. This display constantly generates a different visual narrative based on traffic patterns through the site and uses the energy generated by the wind turbines to maintain its power supply. The tunnel abruptly ends where the inner wall once stood. The zone between the two layers of the former Berlin Wall is bracketed by two unornamented concrete frames, yet there is an additional narrative layer that defines this “death-strip” at the northern terminus of the intervention: that of the 280 metres of land extending from the former “outer wall” to the actual political border between former East and West Berlin, which had officially belonged to the East but was left as an unoccupied no-man’s land. To acknowledge the overlapping dead zones at this border crossing, parallel walls of cor-ten steel the length of the stretch of the no-man’s land, placed on either side of the highway which is here open to the sky, are folded in an accordion-like manner to fit between the concrete frames delineating the zone between the former “inner” and “outer” layers of the Wall. Conveying the collapse of space and time in this dramatic moment, the cor-ten steel marks the nexus of the division between East and West at this spot along the former border. Moreover, the weathering of cor-ten steel, which transforms the orange-brown metal into a deep red hue gives this moment a slowly changing patina that stands as a reminder to passersby that incremental change over time has the power to radically alter our view.

*Figure 5.8:*

Katherine Morawietz, *Tunnel and Amphitheatre Cross-Section* (2019).







**Figure 5.9**  
*Section through the Land Bridge, Amphitheatre and Tunnel*

A detailed sectional rendering representing the construction of the land bridge and tunnel, subversively annotated with poetic variations on its constructive logic.

Directly above the tunnel, the grassy land bridge connects the landscape on either side of the highway, offering both safe access over the A-115 for people and wildlife, and a public park for recreation, concerts and other forms of celebratory gathering. An important event space within this elevated park is the sunken amphitheatre, placed just before the northern-most edge of the land bridge, which is where the former “death-strip” was located. The intention of the land bridge as a green public space is to offer an accessible open-air venue for cultural events as well as a place for rest and enjoyment for those using the neighbouring trails. At night, it is lit by the energy generated by passing cars through the wind turbines as well as solar panels integrated at various points in the “Mauer-Frei” intervention’s concrete structure. Oriented so that the stage projects toward the “void” between the layers of the former Berlin Wall, the sounds of any musical or other event taking place there would be audible to drivers passing underneath. In addition to the music and ambient noise created by different types of users, the connections between the park above and the highway below are extended and enriched by the sightlines that visually connect users at different points in this 3.5-kilometre long intervention.

The integration of an amphitheatre seemed appropriate at the former “death-strip” as a way to subvert the associated feelings of fear, division and powerlessness that had been perpetrated by the Berlin Wall. Music, regardless of genre, has a unique ability to transcend cultural differences and unite those listening into a shared space. Importantly, given that music is a transcultural form of personal (and at times political) expression, siting the amphitheatre so close to the zone that had formerly concretized the limits on politically acceptable expression, is intended as a proactive means of cultivating healing from the traumatic aspects of this site’s past. Altogether, the land bridge offers a public space that is undivided by either the highway or vestiges of the Berlin Wall to create a moment of active inhabitation at the place where historically, physical crossing and personal expression were either forbidden or heavily controlled.

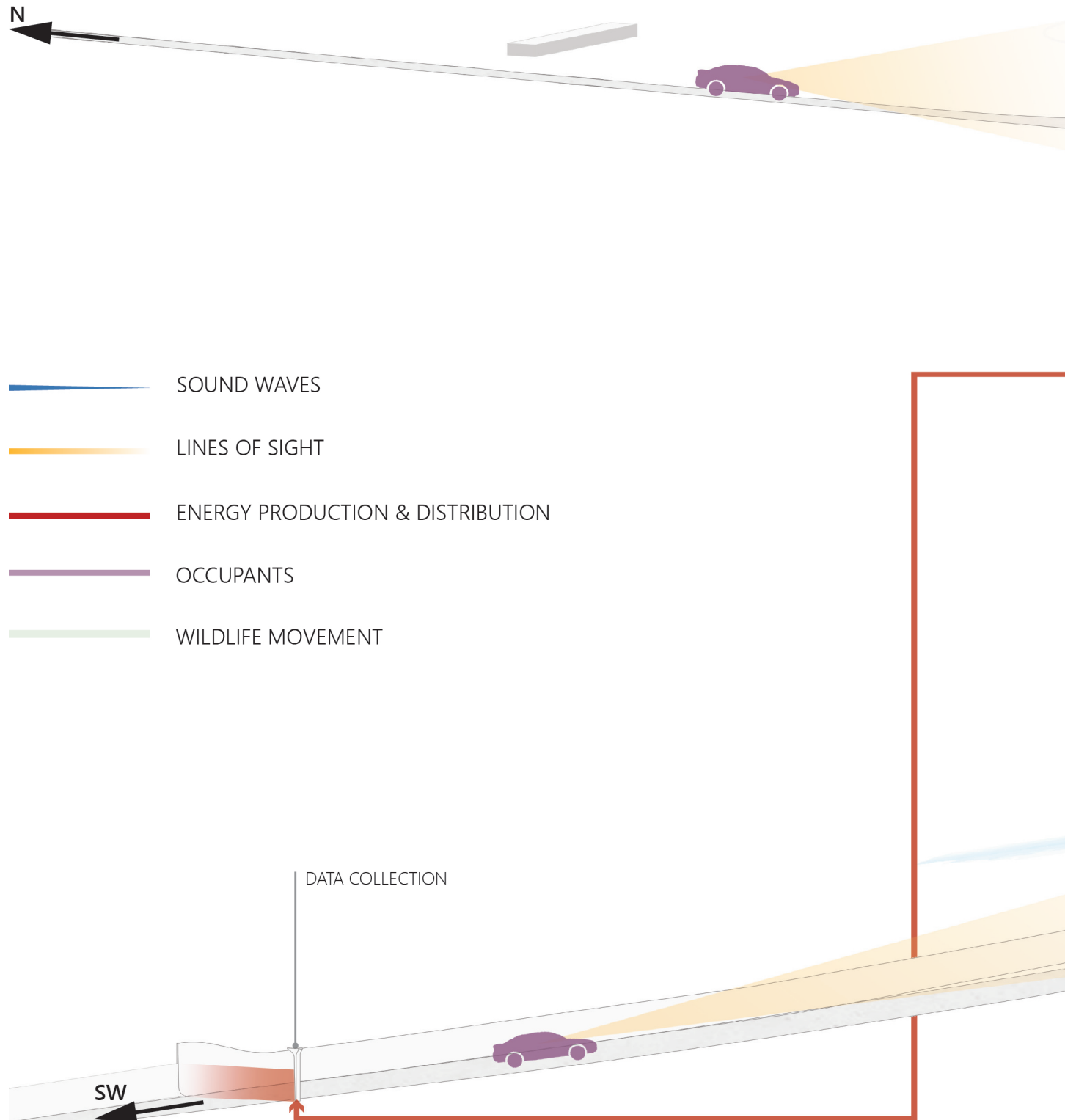
*Figure 5.9:*  
 Katherine Morawietz, *Annotated Tunnel Cross-Section* (2018).



Figure 5.10

*Diagram of Relationships*

Schematic drawing conveying the interrelationships between the various sights, sounds, energy, and occupants across the entirety of the proposed intervention.



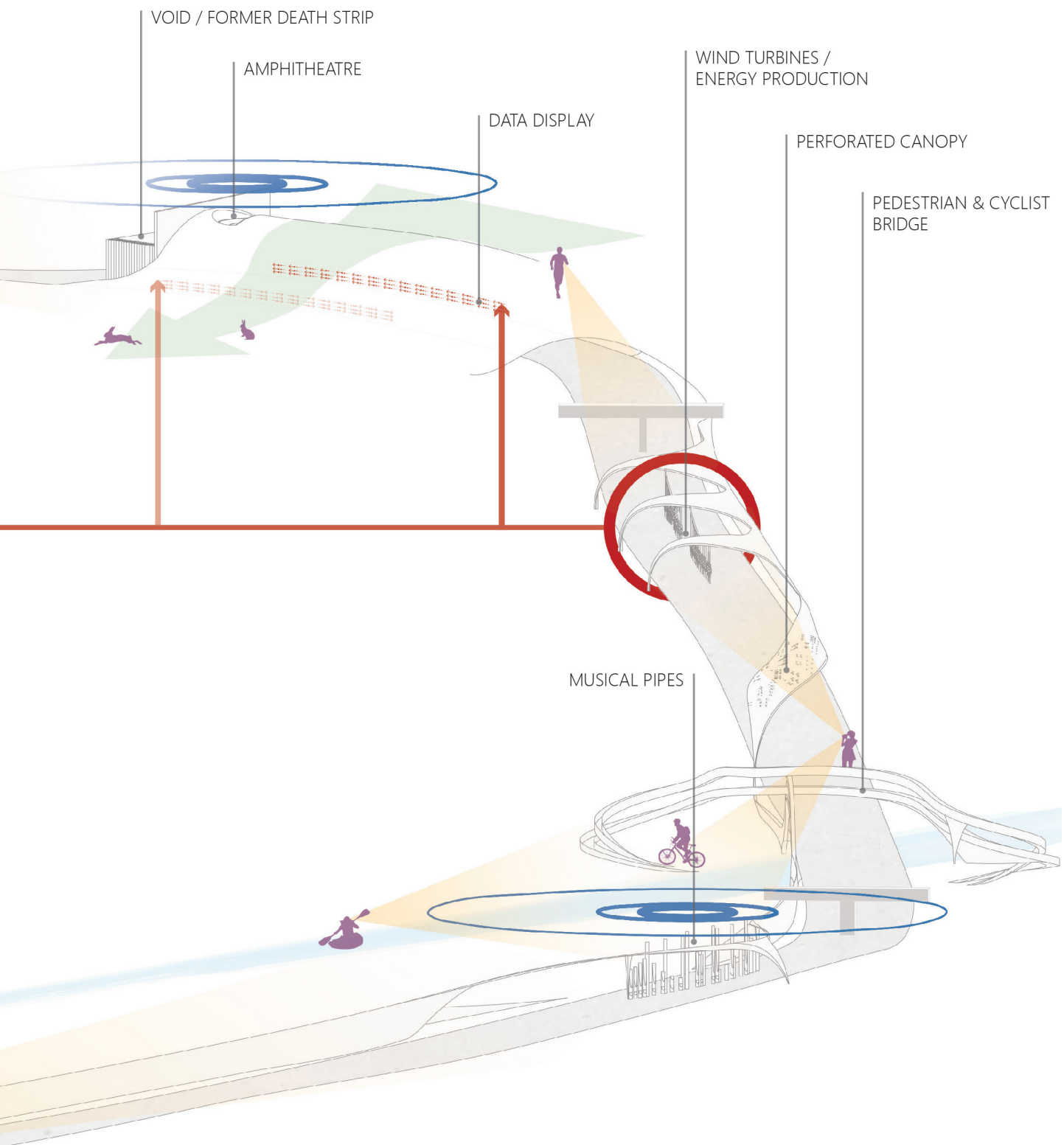


Figure 5.10:

Katherine Morawietz, *Connections Diagram* (2019).



CONCLUDING  
REFLECTIONS





As a transcultural, trans-historical building element, the wall is a politically-loaded product of its sociocultural context. Used for protection and segregation, walls mobilized at an urban scale contribute significantly to separating opposing ideological, socioeconomic, religious, and/or ethnic groups, thereby concretizing and reinforcing social differences and spatial injustices in the built environment. The latent power of walls is such that even after they have been dismantled, the psychological reverberations of their material existence and political consequences continue to affect generations. This thesis focused on the history and legacy of the Berlin Wall to critically probe a set of issues that bear timely relevance, namely, the inherently divisive power of walls, and speculation on the ways in which this basic architectural element may be artfully subverted and reprogrammed to serve the goals of inclusion, diversity, and collective well-being. The spatial and social divisions that the Wall reinforced in Berlin during the second half of the twentieth century remain embedded in inhabitants' collective consciousness decades after its fall. Vestiges of the wall survive in parts of the city as memorials that vie for attention among tributes to victims of the Holocaust and museums displaying Germany's more distant past. In a city so saturated with markers that focus on remembering and atoning for the past, the opportunity to reimagine such an impactful architectural element in this context seemed a poignant and fruitful course of investigation.

In response to my critical inquiry into walls in general, and in particular, into the Berlin Wall's legacy as manifested in the city today, my process led me to the design of a playfully subversive infrastructural intervention that takes as its point of departure the Berlin Wall type and the conditions of its imposition on the landscape at the outer edges of the city's boundaries. Built along the north-south route of the existing highway, the 3.5-kilometre long intervention runs perpendicular to the former Wall's path and emphasizes the driver as both the primary user of the site and catalyst to much of the audio and visual experience. Drivers travelling in both directions on the highway occupy a collective space that is animated by a new, fluid sound barrier wall that morphs into other built elements and hosts various programmes. In direct contrast to the ominous ambiance of this



highly-patrolled border crossing during the years of Berlin's and Germany's separation into East and West, the reimagined site now encourages movement and unrestricted passage, and renders the former "death-strip" an inhabitable space. The integrated sound-, light- and energy-generating elements, activated largely by the moving cars, align well with the emphasis on green energy production integral to Germany's global identity and the importance placed in German culture on the car and well-built highways. Designed with Ultra-High Performance concrete, the proposed intervention is deeply connected to the site's history while celebrating the latest in German construction technology. With the emphasis on subverting the trauma-laden legacy of the Berlin Wall, this thesis project reimagines the programmatic expectations and possibilities of crossing a border, and provides those traveling between Berlin and Brandenburg the opportunity to reflect on the site's troubling history through an uplifting experience that is at once subjective and collective. This thesis project thus offers one proposal for the way in which the divisive potential of an architectural element can be redirected to foster positive change in the urban landscape. Imagining the future relevance of my proposed public highway and park infrastructure, I envision the city of Berlin hosting an annual art competition for local and foreign installation artists to intervene on the Mauer-Frei site, thus perpetually renewing the creative programme, technological innovation, aesthetic experience and social mission of this infrastructure. It is with these aspirations that I conclude my academic training and step forward into the architectural profession.



# BIBLIOGRAPHY





## DIVISION / THE BERLIN WALL

Bainbridge, John. "Die Mauer: The Early Days of the Berlin Wall." *The New Yorker*, October 19, 1962. <https://www.newyorker.com/magazine/1962/10/27/die-mauer>.

Beatt, Cynthia. *Cycling the Frame*. West Germany: Sender Freies Berlin, 1988.

"Berlin after 1945." *Berlin in Brief*. State of Berlin. <https://www.berlin.de/berlin-im-ueberblick/en/history/berlin-after-1945/>.

"The Berlin Wall: A Multimedia History." *Rundfunk Berlin-Brandenburg*. RBB. <https://www.the-berlin-wall.com>. Birthler, Marianne, Lars Krückeberg, Wolfram Putz, and Thomas Willemeit, eds. *Unbuilding Walls: From Death Strip to Freespace*. Basel: Birkhäuser, 2018.

"Berlin Wall Memorial on Bernauer Strasse." *Berlin Wall*. State of Berlin. Accessed November 10, 2018. <https://www.berlin.de/mauer/en/sites/commemorative-sites/berlin-wall-memorial>.

"Building and Development of the Berlin Wall." *Landesdenkmalamt Berlin*. State of Berlin. <https://www.berlin.de/landesdenkmalamt/denkmale/berliner-mauer/aufbau-und-entwicklung/building-and-development-of-the-berlin-wall-648927.php>.

Brighenti, Andrea Mubi and Mattias Kärrholm, eds. "Introduction: The life of walls – in urban, spatial and political theory." In *Urban Walls: Political and Cultural Meanings of Vertical Structures and Surfaces*. Abingdon, Oxon: Routledge, 2019.

Calame, Jon, and Esther Charlesworth. *Divided Cities*. Pennsylvania: University of Pennsylvania Press, 2009.

DiCintio, Marcello. "Introduction: The Wall Disease." In *Walls: Travels Along the Barricades*, edited by John Vigna, 9–15. Fredericton: Goose Lane Editions, 2012.

Elkins, T. H., with B. Hofmeister. *Berlin: The Spatial Structure of a Divided City*. London: Methuen & Co, 1988. Evans, Jennifer V. *Life among the Ruins: Cityscape and Sexuality in Cold War Berlin*. New York: Palgrave Macmillan, 2011.

- Fahey, Carolyn. "Autonomy and presupposition in architecture: Lebbeus Woods' Berlin and Sarajevo projects." *Architectural Research Quarterly* 17, no. 2 (2013): 131-137.
- Kranz, Michal. "The Berlin Wall has officially been gone for as long as it stood — here's how the 27-mile blockade looks today compared to 1989." *Business Insider*, February 5, 2018. <https://www.businessinsider.com/berlin-wall-today-compared-to-before-it-fell-photos-2018-2>.
- Misra, Tanvi. "Conversations in a Divided Berlin." *CityLab*, January 11, 2018. <https://www.citylab.com/life/2018/01/conversations-in-a-divided-berlin/543099/>.
- Saunders, Anna. "Remembering Cold War Division: Wall Remnants and Border Monuments in Berlin." *Journal of Contemporary European Studies* 17, no. 1 (2009): 9–19.
- Schwerter, Stephanie. "Fictionalizing Division: The Urban Landscapes of Belfast, Beirut and Berlin." In *Irish Contemporary Landscapes in Literature and the Arts*, edited by Marie Mianowski, 81–93. New York: Palgrave Macmillan, 2012.
- Souto, Ana. "Architecture and Memory: Berlin, a Phenomenological Approach." In *The Territories of Identity: Architecture in the Age of Evolving Globalization*, 77–90. New York: Routledge, 2013.
- Stacy, William E. "US Army Border Operations in Germany: 1945-1983." *Military History Office*. U.S. Army Center of Military History. <https://history.army.mil/documents/BorderOps/ch6.htm>.
- Stangl, Paul. "The Vernacular and the Monumental: Memory and Landscape in Post-War Berlin." *GeoJournal* 73, no. 3 (2008): 245–53.
- Taylor, Alan. "Lichtgrenze 2014: Commemorating the Fall of the Berlin Wall." *The Atlantic Popular*, November 9, 2014. <https://www.theatlantic.com/photo/2014/11/lichtgrenze-2014-commemorating-the-fall-of-the-berlin-wall/100849/>.
- Verheyen, Dirk. "Occupation, Confrontation, Departure: The Great Powers in Postwar Berlin." In *United City, Divided Memories?: Cold War Legacies in Contemporary Berlin*, 59–73. Plymouth: Lexington Books, 2008.
- Von Donnersmarck, Florian Henckel. *Das Leben Der Anderen (The Lives of Others)*. Germany: Buena Vista International, 2006.
- "The Wall inside the city," *Berlin Wall*. State of Berlin. Accessed November 8, 2018. <https://www.berlin.de/mauer/en/route/the-wall-inside-the-city>.
- Ward, Janet. *Post-Wall Berlin: Borders, Space and Identity*. Palgrave Macmillan, 2011.
- Wenders, Wim. *Der Himmel über Berlin (Wings of Desire)*. West Germany: Basis-Film-Verleih, 1987.

## HISTORY / BERLIN

- Apter, David, David Baltimore, Daniel Bell, Isaiah Berlin, Guido Calabrese, Natalie Z. Davis, Wendy Doniger, et al., eds. *Germany in Transition*. Daedalus. Vol. 123. Cambridge: MIT Press, 1994.
- Bandyopadhyay, Soumyen, and Guillermo Garma Montiel, eds. *The Territories of Identity: Architecture in the Age of Evolving Globalisation*. New York: Routledge, 2013.
- Borneman, John. *Belonging in the Two Berlins: Kin, State, Nation*. New York: Cambridge University Press, 1992.
- Boym, Svetlana. "Berlin, The Virtual Capital." In *The Future of Nostalgia*, 173–218. New York: Basic Books, 2001.
- Colomb, Claire. "Pushing the Urban Frontier: Temporary Uses of Space, City Marketing, and the Creative City Discourse in 2000s Berlin." *Journal of Urban Affairs* 34, no. 2 (2012): 131–52.
- Colomb, Claire. *Staging the New Berlin: Place Marketing and the Politics of Urban Reinvention Post-1989*. New York: Routledge, 2012.
- Daum, Andreas W., and Christof Mauch, eds. *Berlin - Washington, 1800-2000*. New York: Cambridge University Press, 2005.
- Die Trümmerfrauen von Berlin*. Video. Directed by Hans-Dieter Grabe. BR Deutschland: ZDF, 1968.
- "Dossier Spécial - Commissariat de Berlin - Mise à Jour Juin 2012." *AlerteCobra.info*. AlerteCobra.info. <http://www.alertecobra.info/production/berlin.html>.
- Doud, David Tieman. *Berlin 2000: The Center of Europe*. Lanham, MD: University Press of America, 1995.
- Gordon, David L.A., ed. *Planning Twentieth Century Capital Cities*. New York: Routledge, 2006.

“HistoMapBerlin.” *Landesarchiv Berlin*. Geoportal Berlin. <http://histomapberlin.de/histomap/en/index.html>.

Huyssen, Andreas. *Present Pasts: Urban Palimpsests and the Politics of Memory*. Stanford: Stanford University Press, 2003.

Katz, Bruce, Luise Noring, and Nantke Garrelts. “Cities and Refugees—The German Experience. 2016.

Leonid Bershidsky, “Gentrification in Turning Berlin into a Generic Hipsterville.” *Bloomberg Opinion*. April 19, 2018, <https://www.bloomberg.com/opinion/articles/2018-04-19/gentrification-is-turning-berlin-into-a-generic-hipsterville>.

McMorrough, John. “Ru(m)Inations: The Haunts of Contemporary Architecture.” *Perspecta* 40 (2008): 164–69.

Mehrotra, Rahul. “Negotiating the Static and Kinetic Cities: The Emergent Urbanism of Mumbai.” In *Other Cities, Other Worlds: Urban Imaginaries in a Globalizing Age*, edited by Andreas Huyssen, 205–18. London: Duke University Press, 2008.

Lindner, Christoph. *Urban Space and Cityscapes: Perspectives from Modern and Contemporary Culture*. New York: Routledge, 2006.

Novy, Johannes, and Claire Colomb. “Struggling for the Right to the (Creative) City in Berlin and Hamburg: New Urban Social Movements, New ‘Spaces of Hope’?” *International Journal of Urban and Regional Research* 37, no. 5 (2013): 1816–38.

“Planungs-, Bauphase und Eröffnung am 3. April 1973.” *Weiterbauen ’70*. Accessed January 30, 2019, <https://web.archive.org/web/20121115144618/http://siebzigerjahre.laufwerk-b.de:80/einzelhausuntersuchungen/raststaette-dreilinden>.

Richardson-Little, Ned. “Of Walls and Victims: Berlin Refugees Then and Now.” *Superfluous Answers to Necessary Questions*, August 24, 2015. <https://historyned.blog/2015/08/24/of-walls-and-victims-berlin-refugees-then-and-now/>

Vale, Lawrence J. *Architecture, Power, and National Identity*. Second. New York: Routledge, 2008.

Vale, Lawrence J, and Thomas J Campanella, eds. *Resilient City: How Modern Cities Recover From Disaster*. New York: Oxford University Press, 2005.

“Welcome to Berlin,” *Visit Berlin*, Berlin Tourismus & Kongress, accessed September 22, 2018, <https://www.visitberlin.de/en>



## ARCHITECTURAL DESIGN / CONSTRUCTION

- Al-Aqel, A. A., B. K. Lim, E. E. M. Noor, T. C. Yap and S. A. Alkaff. "Potentiality of Small Wind Turbines along Highway in Malaysia." *2016 International Conference on Robotics, Automation and Sciences (ICORAS)* (2016): 1-6.
- "Andy Goldsworthy." *Storm King Art Center*. Storm King Art Center. Accessed October 30, 2018. <https://collections.stormking.org/Detail/objects/401>.
- "Autobahnen: So Werden Schnellstraßen repariert." *ADAC*, August 13, 2018. <https://adac.de/der-adac/motorwelt/reportagen-berichte/sicher-mobil/autobahn-aufbau-schlagloecher-blow-up/>.
- Bell, Michael and Craig Buckley, eds. *Solid States: Concrete in Transition*. New York: Princeton Architectural Press, 2010.
- Bill, Max, ed. *Robert Maillart*. Editions d'Architecture (Artemis): 1969.
- Chianese, Robert Louis. "Storm King 'Running' Wall." *American Scientist* 101, no. 3 (2013): 188. <https://www.americanscientist.org/article/storm-king-running-wall>.
- "CityLink Sound Tube: Melbourne, Australia." *ElectroLight*. Accessed January 18, 2019. <http://electrolight.com/project/citylink-soundtube/>.
- Egan, David M. *Concepts in Architectural Acoustics*. McGraw-Hill, 1972.
- "Gates of Light." *Studio Roosegaarde*. Accessed March 20, 2019. <https://www.studio Roosegaarde.net/project/gates-of-light>.
- "Glowing Lines." *Studio Roosegaarde*. Accessed March 20, 2019. <https://www.studio Roosegaarde.net/project/glowing-lines>.
- Hall, William. *Concrete*. Phaidon, 2017.
- "Igualada Cemetery / Enric Miralles." *ArchDaily*. Accessed April 12, 2019. <https://www.archdaily.com/103839/ad-classics-igualada-cemetery-enric-miralles>.

Kempe, Sarah. "Winds of Change: Turbine Turns Traffic into Energy." *Inside Energy*. Shell. <https://www.shell.com/inside-energy/turbine-turns-traffic-into-energy.html>.

Kultermann, Eva and William P. Spence. *Construction Material, Methods, and Techniques: Building for a Sustainable Future*. Fourth. Boston: Cengage, 2016.

Leo Enticknap, *Moving Image Technology: From Zoetrope to Digital* (London: Wallflower, 2005), 7.

Martinez, Marcos. "Roads that Generate Electricity: Cars Create Energy at 70 Miles an Hour." *Ferrovial Blog*. Ferrovial. <https://blog.ferrovial.com/en/2016/11/roads-that-generate-electricity-cars-create-energy/>.

"Maya Lin's Original Proposal." *Vietnam Veterans Memorial Fund*. Accessed April 10, 2019. <http://www.vvmf.org/maya-lin-design-submission>. Ripley, Colin, Marco L. Polo and Arthur Wrigglesworth, eds. *In the Place of Sound: Architecture, Music, Acoustics*. Cambridge Scholars Printing, 2007.

Verma, S. S. "Generating Electricity from Traffic." *Science India*. Science India. [http://www.scienceindia.in/home/view\\_article/88](http://www.scienceindia.in/home/view_article/88).

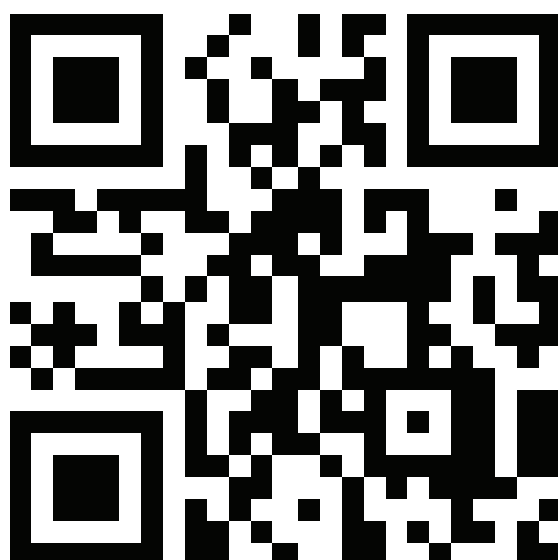
White, Chris. "Eerie Instruments Played by the Wind." *Atlas Obscura*. Atlas Obscura. <https://atlasobscura.com/articles/eerie-instruments-played-by-the-wind>.





# APPENDIX

## VIDEO





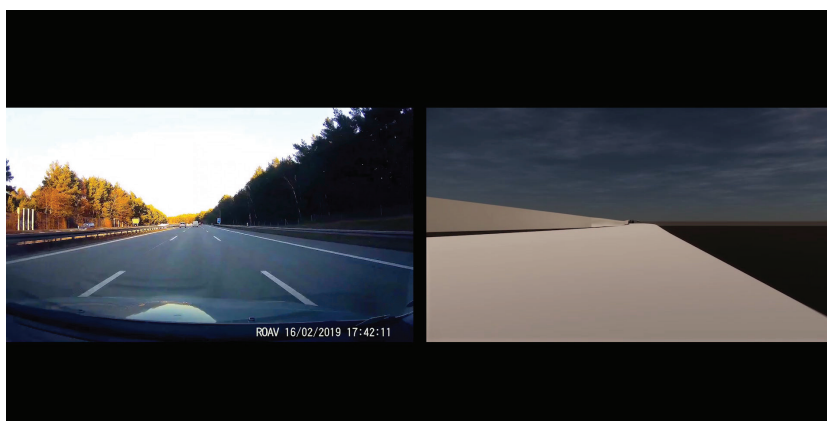
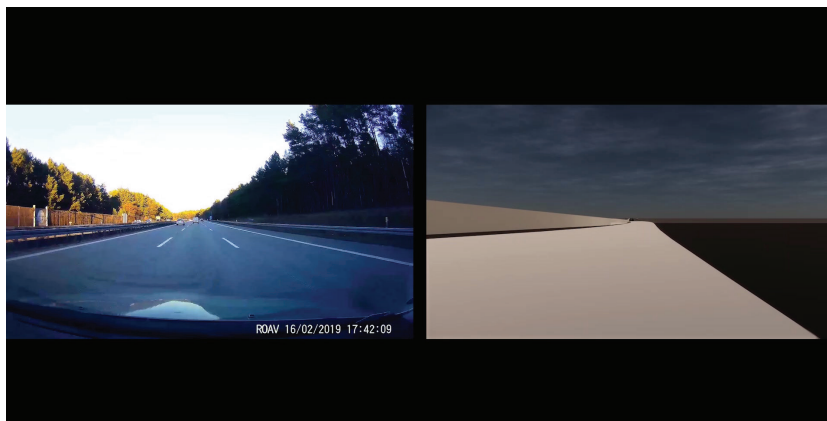
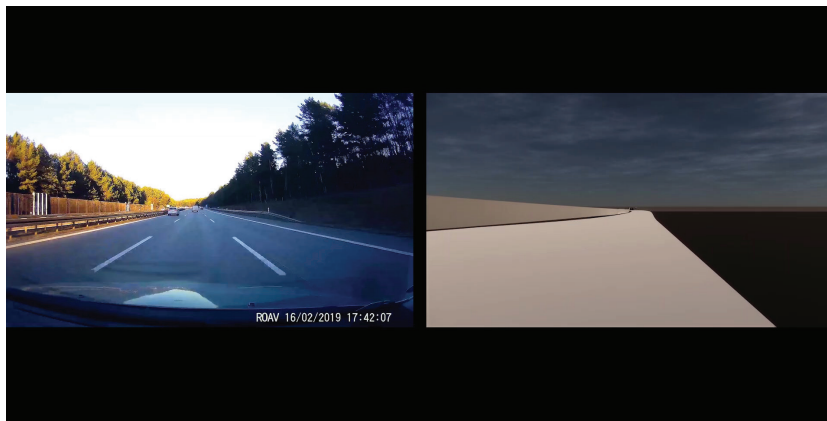
The following series of images are stills taken at two-second intervals from the video drive-through experience curated for this project.

To view the video in its entirety, scan the QR-Code on the facing page or go to <https://youtu.be/jZkhXcLgcGU>

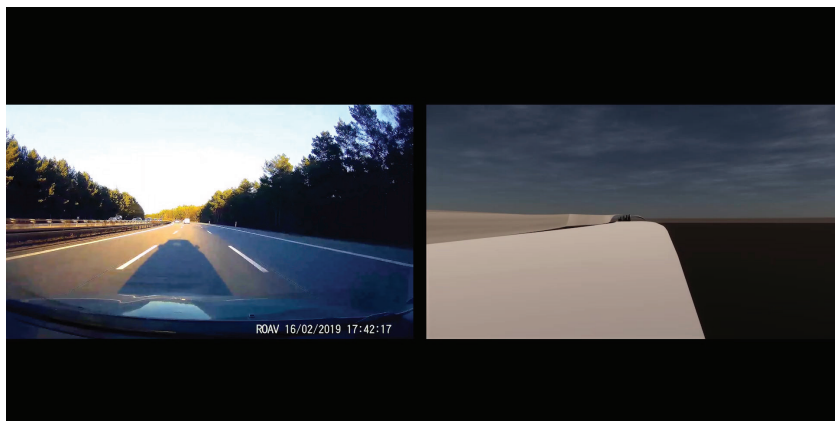
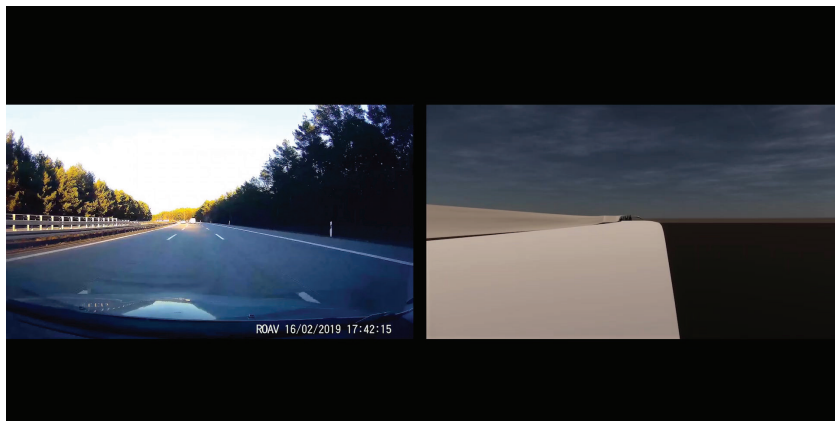
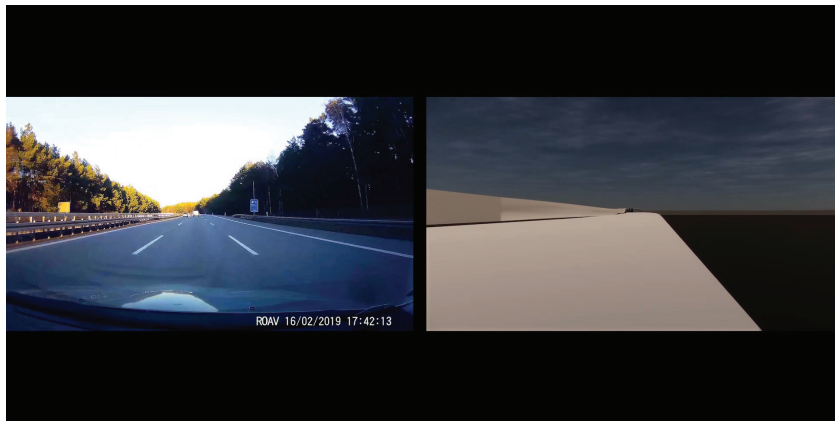




## DATA COLLECTION PILLAR

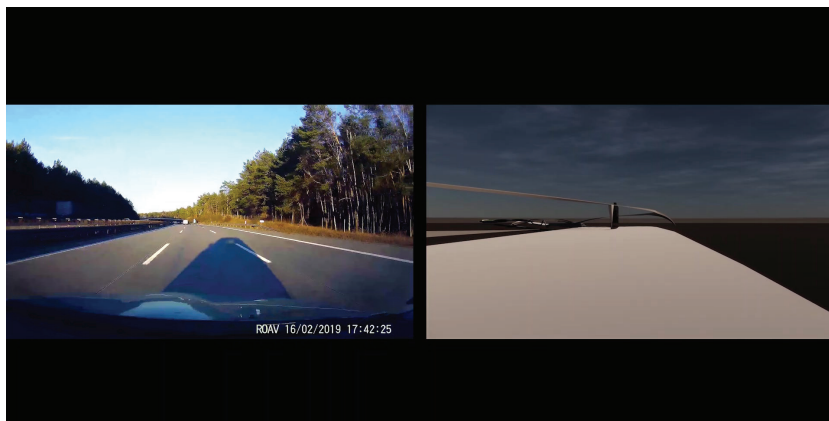
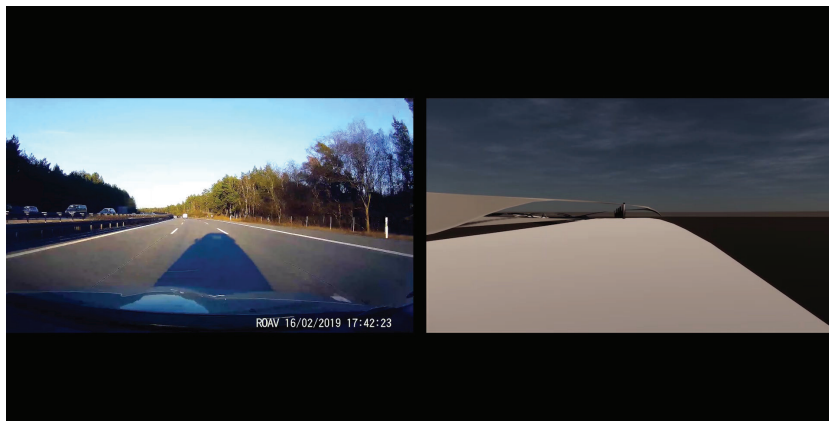
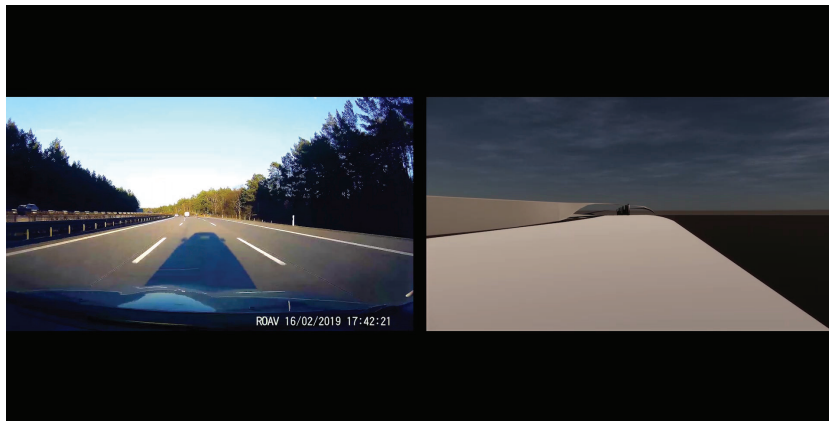






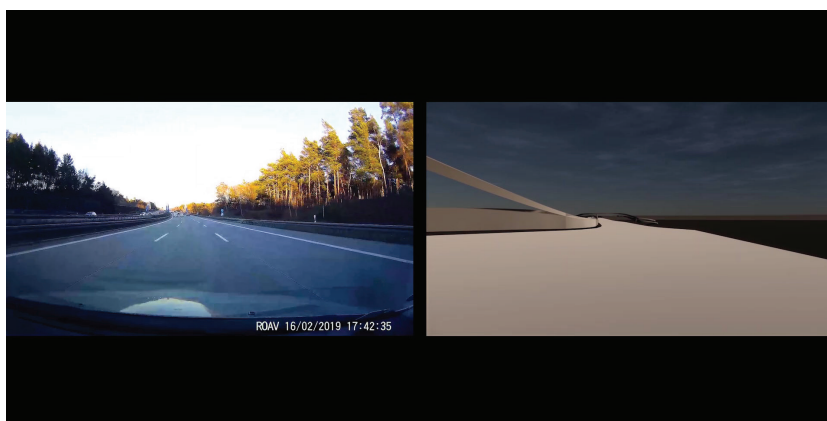
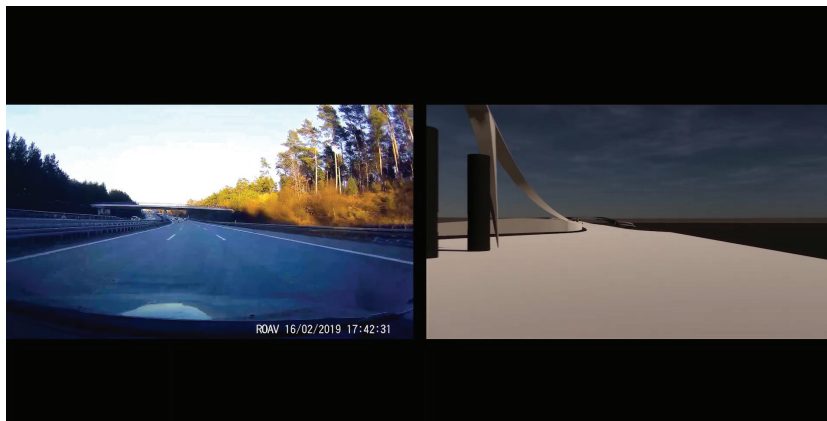




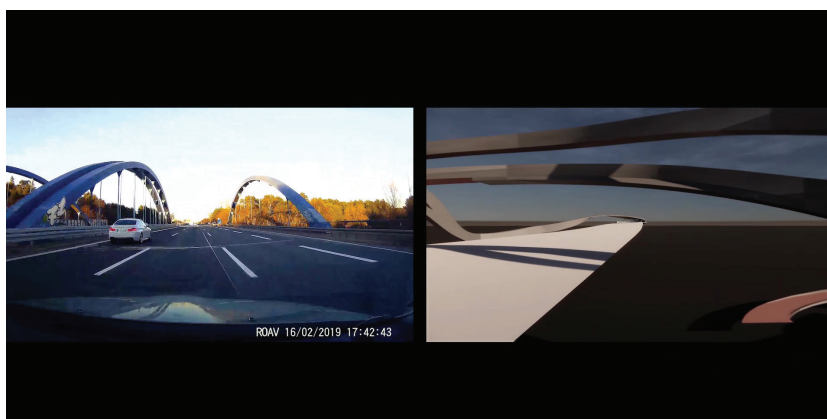
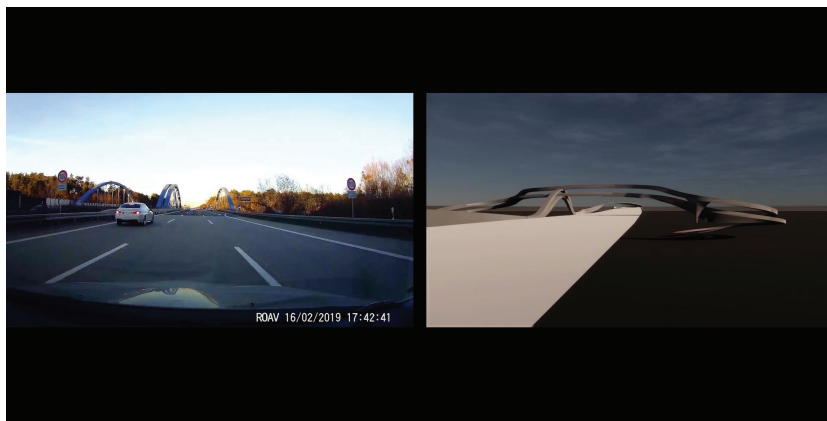
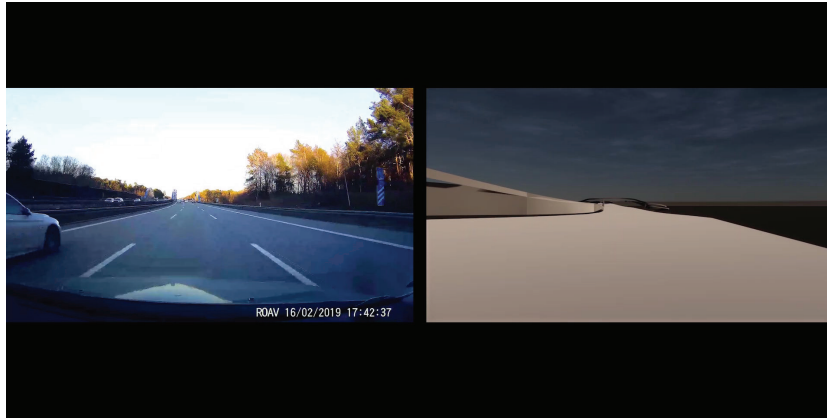


MUSICAL PIPES





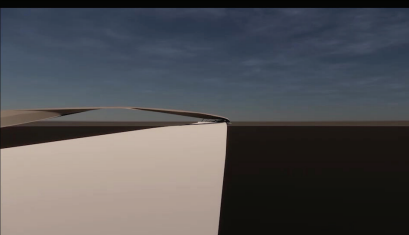
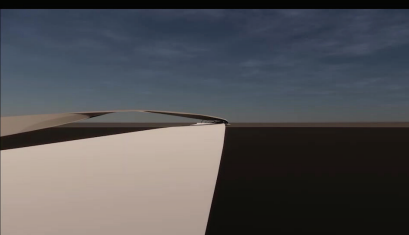
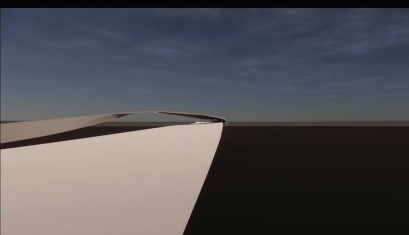
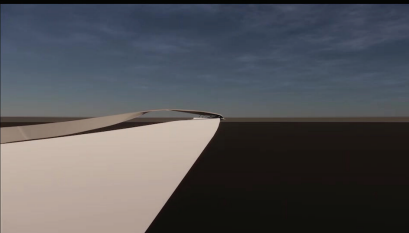




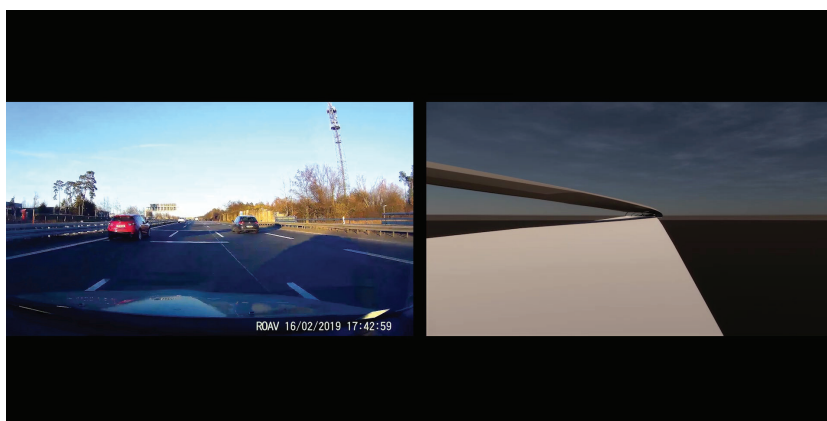
BRIDGING SPEEDS













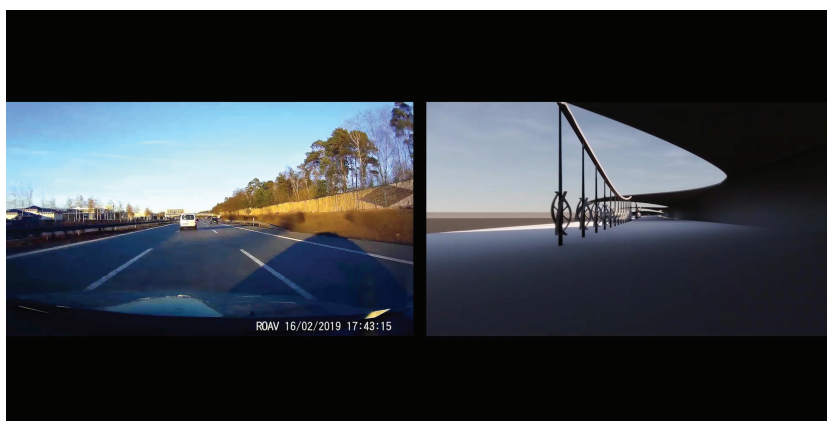


PERFORATED CANOPY





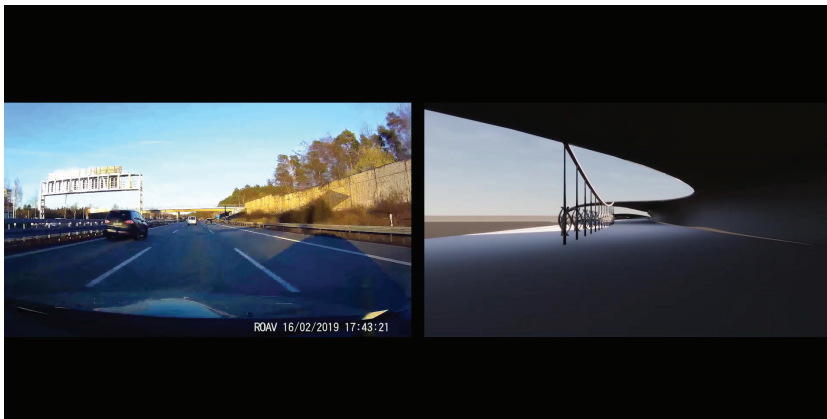




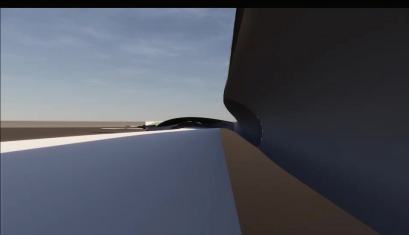
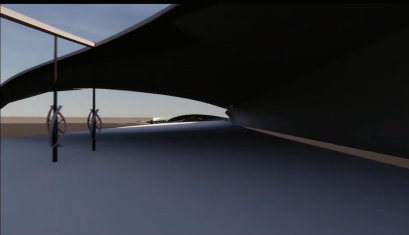




## WIND TURBINES

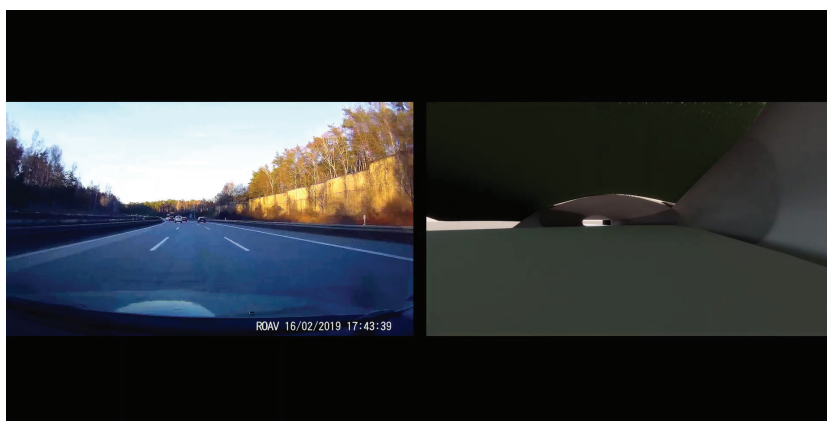
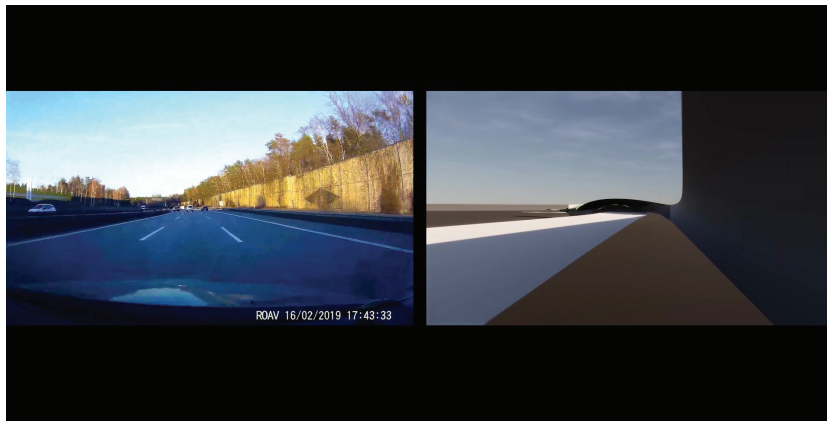




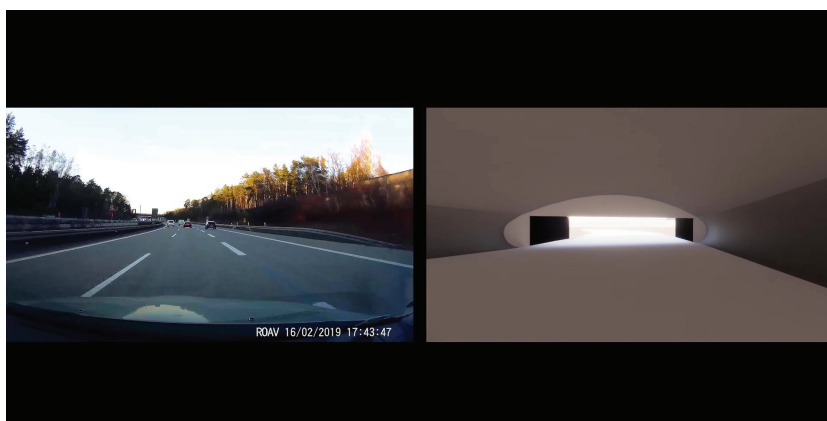
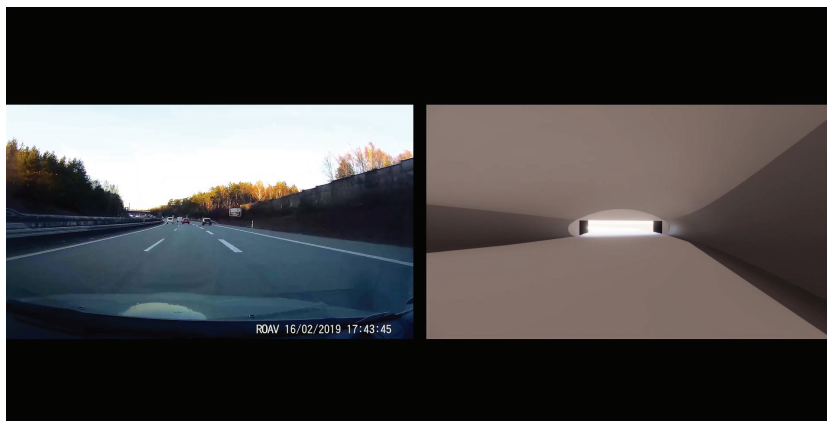
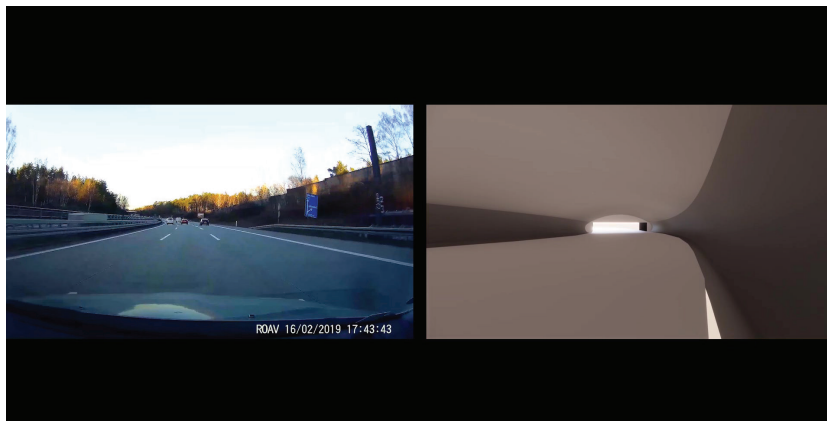




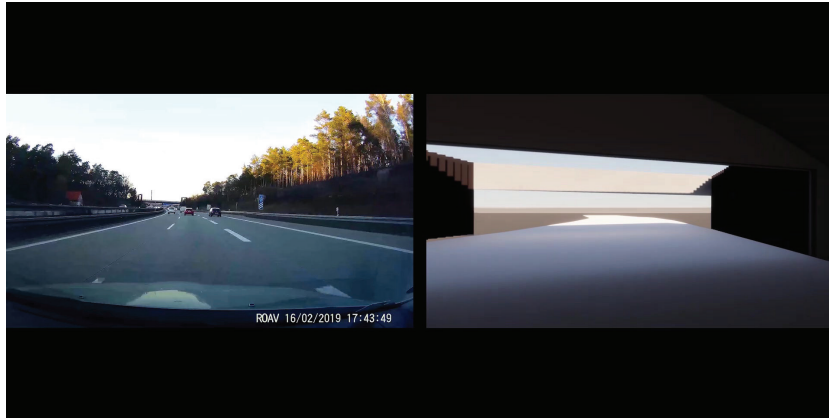




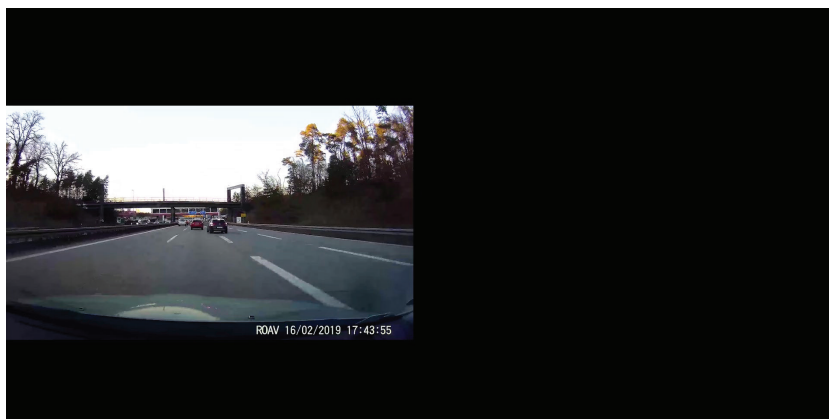
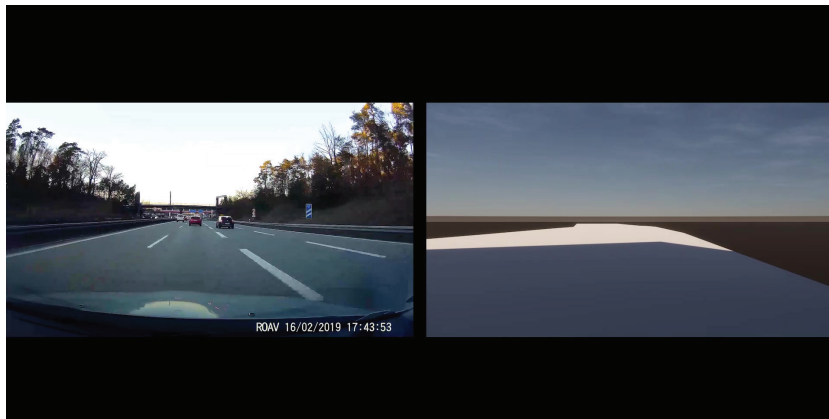








## TUNNEL AND VOID







FORMER ALLIED  
CHECKPOINT BRAVO





